

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION



SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Fifth Edition 2010, and Interim Specifications through 2010.

DESIGN LOADING

Live Load HL - 93 Modified

TRAFFIC DATA

Current (2010) AADT 5180
Future (2030) AADT 6220
DHV - % of AADT 12%
Design Hour Volume 746
Heavy Trucks (% of AADT) 4%
Heavy Trucks (% of DHV) 2%
Directional Distribution (% of DHV) 55%
18 kip Equivalent P 2.0 62
18 kip Equivalent P 2.5 59
Design Speed (mph) 40

HYDROLOGIC DATA

Drainage Area 13.7 sq mi
Design Discharge (Q50) 828.9 cfs
Check Discharge (Q100) 953.5 cfs

With Backwater:

Headwater Elevation (Q50) 33.9 ft
Headwater Elevation (Q100) 36.2 ft
Discharge Velocity (Q50) 3.2 fps
Discharge Velocity (Q100) 1.9 fps
Headwater Elevation (Q1.1) 17.5 ft
Discharge Velocity (Q1.1) 1.8 fps
Headwater Elevation (Q25) 28.5 ft

Without Backwater:

Headwater Elevation (Q50) 18.5 ft
Headwater Elevation (Q100) 18.9 ft
Discharge Velocity (Q50) 8.3 fps
Discharge Velocity (Q100) 9.5 fps
Headwater Elevation (Q1.1) 16.1 ft
Discharge Velocity (Q1.1) 3.0 fps
Headwater Elevation (Q25) 18.3 ft

MATERIALS

Concrete:
Precast Class "P"
All Other Class "A"
Reinforcing Steel ASTM A 615/A 615M, Grade 60

Structural Steel:

All Material (except as noted) ASTM A 709, Grade 50W (unpainted)
High Strength Bolts ASTM A 325, Type 3

BASIC DESIGN STRESSES

Concrete f 'c = 4,350 psi
Precast Concrete f 'c = 6,000 psi

Reinforcing Steel

Structural Steel:
ASTM A 709, Grade 50W F y = 50,000 psi
ASTM A 709, Grade 36 F y = 36,000 psi
ASTM A 325 F μ = 120,000 psi

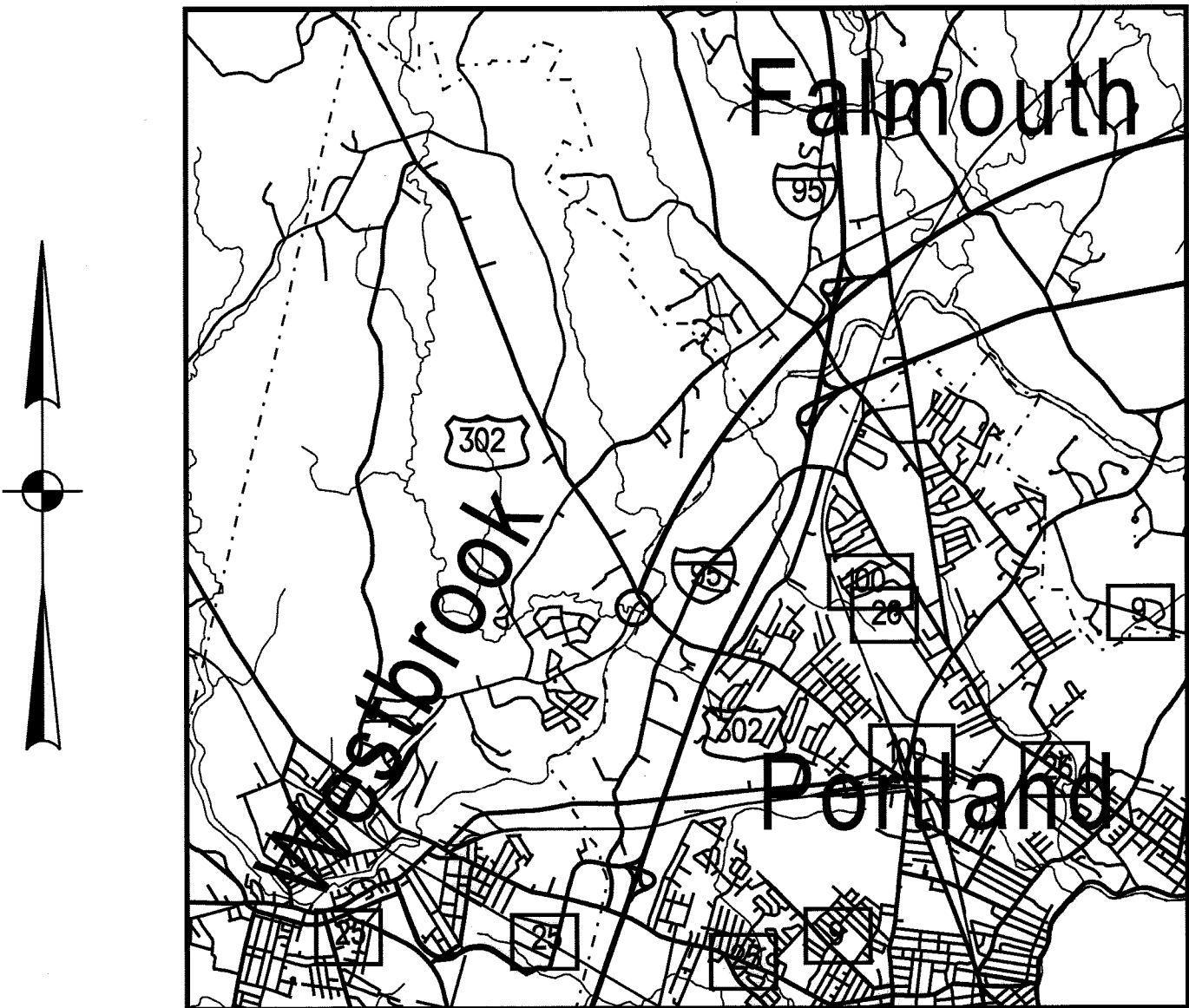
UTILITIES

Central Maine Power Company Portland Water District
Fairpoint Communications City of Westbrook Wastewater Division
Time Warner Cable

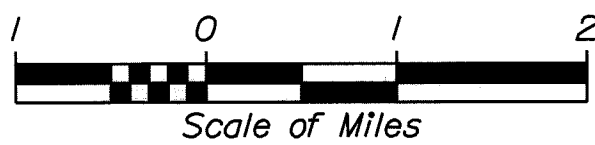
MAINTENANCE OF TRAFFIC

Maintain one 12'-0" wide lane of one - way traffic in conjunction with an off-site detour, see Special Provision 652.

WESTBROOK
CUMBERLAND COUNTY
LITTLE BRIDGE
OVER
MILL BROOK
EAST BRIDGE STREET
BH-1676(100)X
PROJECT LENGTH 0.038 mi.
BRIDGE REPLACEMENT
BRIDGE NO. 3987



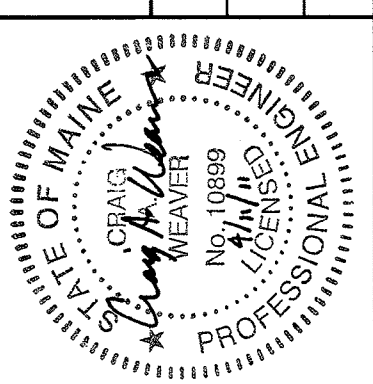
LOCATION MAP



LIST OF DRAWINGS

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Estimated Quantities & Notes	2
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Boring Logs	5
Cross Sections	6-9
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Right of Way Map	14

STATE OF MAINE DEPARTMENT OF TRANSPORTATION	APPROVED	DATE
	COMMISSIONER	4/20/11
CHIEF ENGINEER		4/20/11



SIGNATURE	P.E. NUMBER	DATE
Craig Weaver	10889	4/20/11

PROJECT INFORMATION	
PROGRAM	BRIDGE
PROJECT MANAGER	N. BENOIT
DESIGNER	K. CONSTANZER
CONSULTANT	KLEINFELDER/SEA
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

PIN 16761.00

BH-1676(100)X

WESTBROOK LITTLE BRIDGE	TITLE SHEET
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SHEET NUMBER

1

OF 14



Date: 4/11/2011

Username: Craig Weaver

Division: BRIDGE

Filename: \BRIDGE\MSTA\001_Title.dgn

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GENERAL CONSTRUCTION NOTES

1. For easements, construction limits and right of way lines, refer to Right of Way Map.

2. The clearing limits as shown on the plans are approximate. The exact limits will be established in the field by the Resident. Payment for clearing will be considered incidental to Contract items.

3. All utility facilities shall be adjusted by the respective utilities unless otherwise noted.

4. Do not excavate for Aggregate Subbase Course where existing material is suitable as determined by the Resident.

5. In areas where the Resident directs the Contractor not to excavate to the subgrade line shown on the plans, payment for removing existing pavement, grubbing, shaping, ditching, and compacting the existing subbase and layers of new subbase 6 inches or less thick will be made under appropriate equipment rental items.

6. All embankment material, except as otherwise shown, placed below EL. 34.1 shall be Granular Borrow meeting the requirements of Subsection 703.19, Material for Underwater Backfill.

7. Place Plain Riprap on sideslopes up to EL. 34.1 and within limits detailed on the Plan.

8. Place loam 2 inches deep on all new or reconstructed sideslopes or as directed by the Resident.

9. Erosion Control Mix may be substituted in those areas normally receiving loam and seed as directed by the Resident. Placement shall be in accordance with Standard Specifications Section 619, Mulch. Payment will be made under Item No. 619.1401, Erosion Control Mix.

10. Extended-use Erosion Control Blanket, seeded gutters, riprap downspouts and other gutters lined with Stone Ditch Protection shall be constructed after paving and shoulder work is completed, where it is apparent that runoff will cause continual erosion. Payment will be made under the appropriate Contract items.

11. Project information referred to below may be accessed at the following MaineDOT web address: <http://www.maine.gov/mdot/comprehensive-list-projects/project-information.php>.

12. The existing bridge plans may be accessed at the MaineDOT web address. The plans are reproductions of the original drawings as prepared for the construction of the bridge. It is very unlikely that the plans will show any construction field changes or any alterations which may have been made to the bridge during its life span.

13. The hydrologic report of the bridge site may be accessed at the MaineDOT web address. The hydrologic report is based on MaineDOT's interpretation of the information obtained for the subject site. No assurance is given that the information or the conclusions of the report will be representative of actual conditions at the time of construction.

14. The project geotechnical report titled: "Geotechnical Design Report for the Replacement of Little Bridge, October 26, 2010 and Addendum #1" may be accessed at the MaineDOT web address.

15. Geotechnical information furnished or referred to in this plan set is for the use of the Bidders and the Contractor. No assurance is given that the information or interpretations will be representative of actual subsurface conditions at the construction site. MaineDOT will not be responsible for the Bidders' or Contractor's interpretations of, or conclusions drawn from, the geotechnical information. The boring logs contained in the plan set present factual and interpretive subsurface information collected at discrete locations. Data provided may not be representative of the subsurface conditions between the boring locations.

16. Quantities included for pay items measured and paid for by Lump Sum are estimated quantities and are provided by MaineDOT for informational purposes only. Lump Sum pay items will be paid for at the Contract Bid amount, with no addition or reduction in payment to the Contractor if the actual final quantities are different from the MaineDOT provided estimated quantities, except as follows:

a. If a Lump Sum pay item is eliminated, the requirements of Standard Specifications Section 109.2, Elimination of Items, will take precedence.

b. If other Contract Documents specifically allow a change in payment for a Lump Sum pay item, those requirements will be followed.

c. If a design change results in changes to estimated quantities for Lump Sum pay items, price adjustments will be made in accordance with Standard Specifications Section 109.7, Equitable Adjustments to Compensation.

17. Two Reflectorized Flexible G.R. Markers (Item 606.353) will be installed at each Guardrail End.

18. *Payment for attaching Proposed Guardrail to Existing Guardrail shall be considered incidental to related Contract items.*

19. Payment for removal of Existing Railroad Tie Stairs shall be considered incidental to related Contract items.

20. An abandoned 12" ductile iron water main, owned by Portland Water District, exists within the project limits at approximately 10 feet below existing pavement. If removal is necessary, water main becomes property of Contractor and remaining ends shall be capped or filled. Payment for removal and capping will be considered incidental to Contract Items.

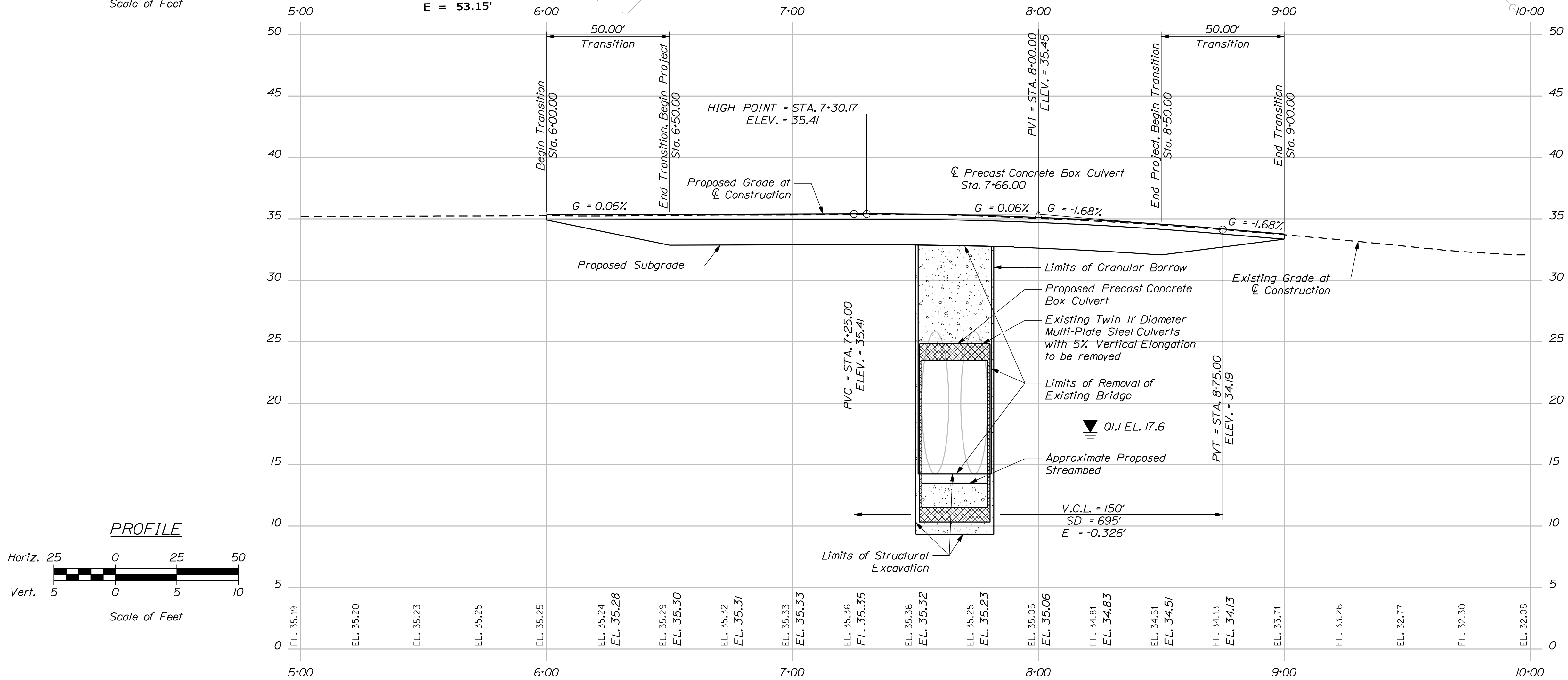
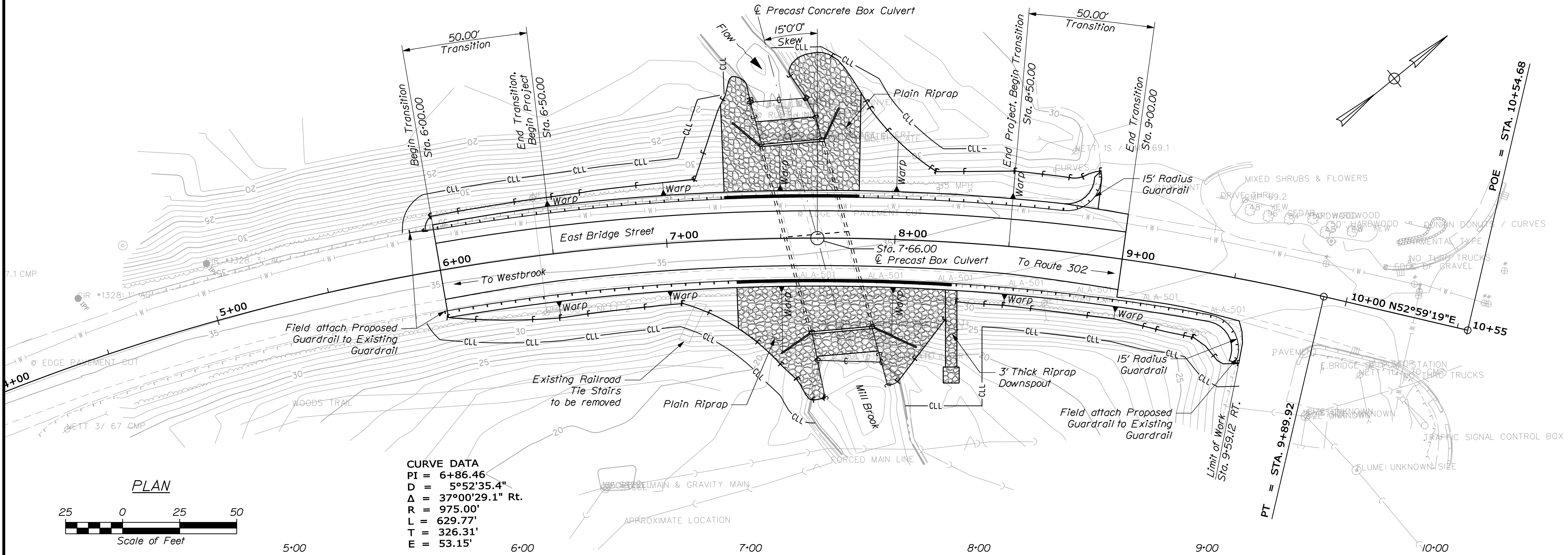
OF 14 SHEET NUMBER	LITTLE BRIDGE MILL BROOK WESTBROOK CUMBERLAND COUNTY				PROJ. MANAGER CHECKED-DETAILED CHECKED-REVISED DESIGN2-DETAILED2 DESIGN3-DETAILED3	N. Benoit K. Constanter M. Steele	DATE 1/28/11	STATE OF MAINE DEPARTMENT OF TRANSPORTATION BH-1676(100)X BRIDGE NO. 3987 PIN 16761.00 BRIDGE PLANS
	ESTIMATED QUANTITIES							
	& NOTES							

Date: 4/11/2011

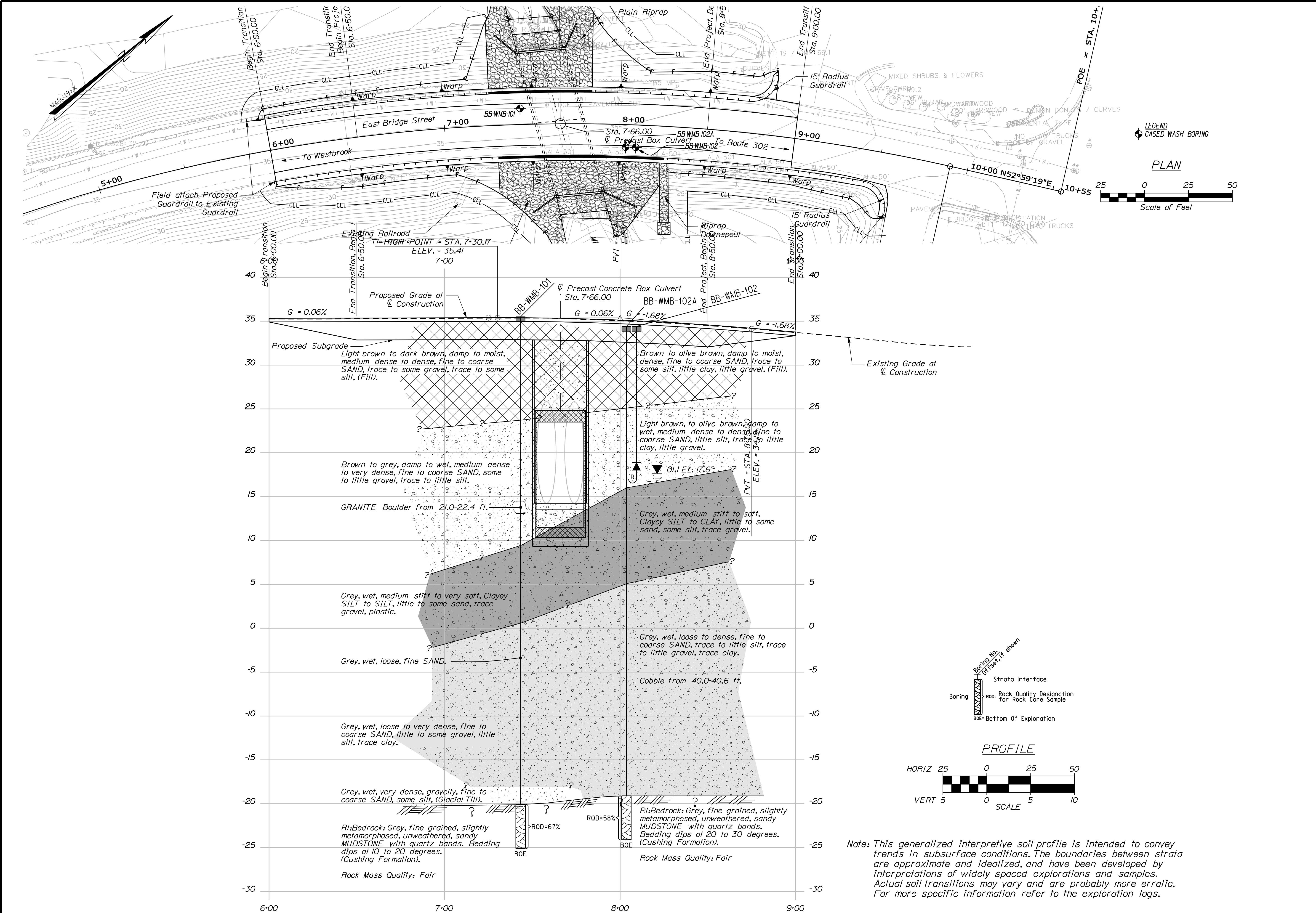
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Division: BRIDGE

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STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		BH-1676(100)X		PIN 16761.00		BRIDGE NO. 3987		BRIDGE PLANS	
LITTLE BRIDGE		MILL BROOK		CUMBERLAND COUNTY		WESTBROOK		PLAN & PROFILE		SHEET NUMBER	
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OF 14		OF 14		OF 14		OF 14		OF 14		OF 14	

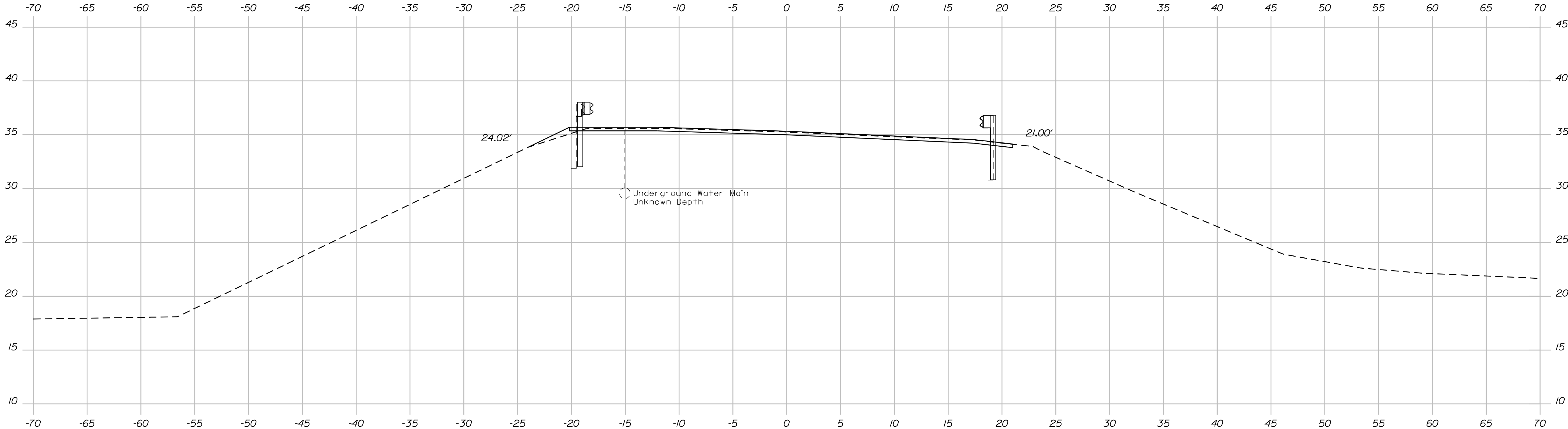


Note: This generalized interpretive soil profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		BH-1676(100)X		PIN 16761.00		BRIDGE NO. 3987		BRIDGE PLANS	
LITTLE BRIDGE		MILL BROOK		CUMBERLAND COUNTY		WESTBROOK		BORING LOCATION PLAN & INTERPRETIVE SUBSURFACE PROFILE		SHEET NUMBER	
PROJ. MANAGER		BY		DATE		SIGNATURE		P.E. NUMBER		DATE	
DESIGN-DETAILED		T. WHITE		JAN 2010							
CHECKED-REVIEWED											
DESIGN-DETAILED											
REVISIONS 1											
REVISIONS 2											
REVISIONS 3											
REVISIONS 4											
FIELD CHANGES											
4										OF 14	

Maine Department of Transportation				Project: Little Bridge #387 over Mill Brook		Boring No.: BB-WMB-101	
Soil/Rock Exploration Log				Location: Westbrook, Maine		PIN: 16761.00	
U.S. CUSTOMARY UNITS							
Drillers: MainDOT		Elevation (ft.): 35.5		Pier ID/DB: 5" Solid Stem			
Operator: Giguere/Giles		Datum: NAD83		Sampler: Standard Split Spoon			
Logged By: B. Wilder		Rig Type: CME 450		Sampler Wt./Fall: 140W/30"			
Date Started/Finished: 12/17/22/09		Drilling Method: Cable Rock Boring		Core Barrel: NQ-2"			
Boring Location: T44.3, A-2 LT.		Casing ID/DB: VM & NY		Water Level: 20.0' bgs.			
Water Efficiency Factor: 0.84		Sampler Type: Automatic ID		Hydraulic ☐ Rope & Cathead ☐			
Definitions: S = Split Spoon Sample U = Unsuccessful Split Spoon Sample Attempt N = Hollow Stem Auger M = Hollow Stem Auger W = Water Content, percent L = Liquid Limit P = Plastic Limit PI = Plasticity Index Nq = Empirical correction for water efficiency N = Gross Design Test		R = Rock Core Sample SA = Solid Stem Auger NSA = Hollow Stem Auger W = Water Content, percent L = Liquid Limit P = Plastic Limit PI = Plasticity Index Nq = Empirical correction for water efficiency N = Gross Design Test		S _u = In Situ Field Vane Shear Strength (psf) T _v = Vane Torque Shear Strength (psf) C _u = Unconfined Compressive Strength (psf) M = Moisture Content, percent W = Water Content, percent L = Liquid Limit P = Plastic Limit PI = Plasticity Index Nq = Empirical correction for water efficiency N = Gross Design Test		S _u = Lab Vane Shear Strength (psf) T _v = Vane Torque Shear Strength (psf) C _u = Unconfined Compressive Strength (psf) M = Moisture Content, percent W = Water Content, percent L = Liquid Limit P = Plastic Limit PI = Plasticity Index Nq = Empirical correction for water efficiency N = Gross Design Test	
Sample Information				Visual Description and Remarks			
Depth (ft.)	Sample No.	Pen./Ref. (in.)	Sample Depth (ft.)	Blows 1/8 in. SPT (Last 10) or RSD (13)	Uncorrected	Log	Laboratory Testing Results/AASHTO Unified Class
	10	24/16	1.00 - 3.00	10/10/97	19	27	SSA
5	20	24/17	5.00 - 7.00	4/4/20/40	24	34	
							GQ241451 A-4, SM WC=6.1%
10	30	24/15	10.00 - 12.00	4/5/4/4	9	13	
							GQ241452 A-4, SM WC=13.1%

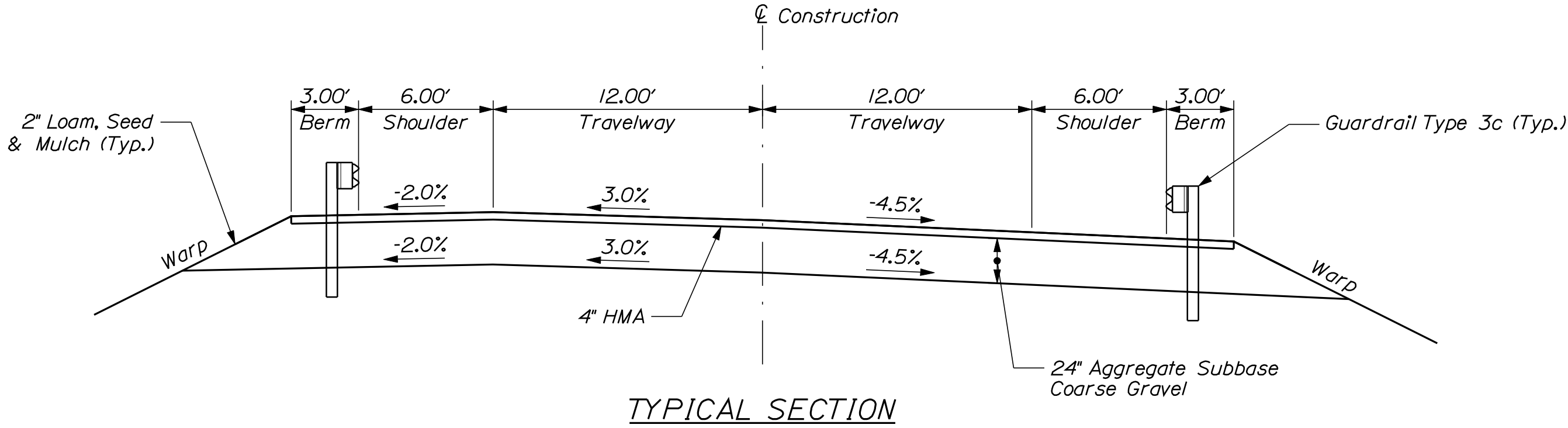
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Sta. 5+89.78 - 18.65' LT. to
Sta. 8+72.04 - 18.00' LT.
Install 287.50' Guardrail Type 3c

6+00.00
Begin Transition - Match Existing Sta. 6+00.00

Sta. 5+98.79 - 18.00' RT. to
Sta. 9+42.64 - 18.00' RT.
Install 337.50' Guardrail Type 3c



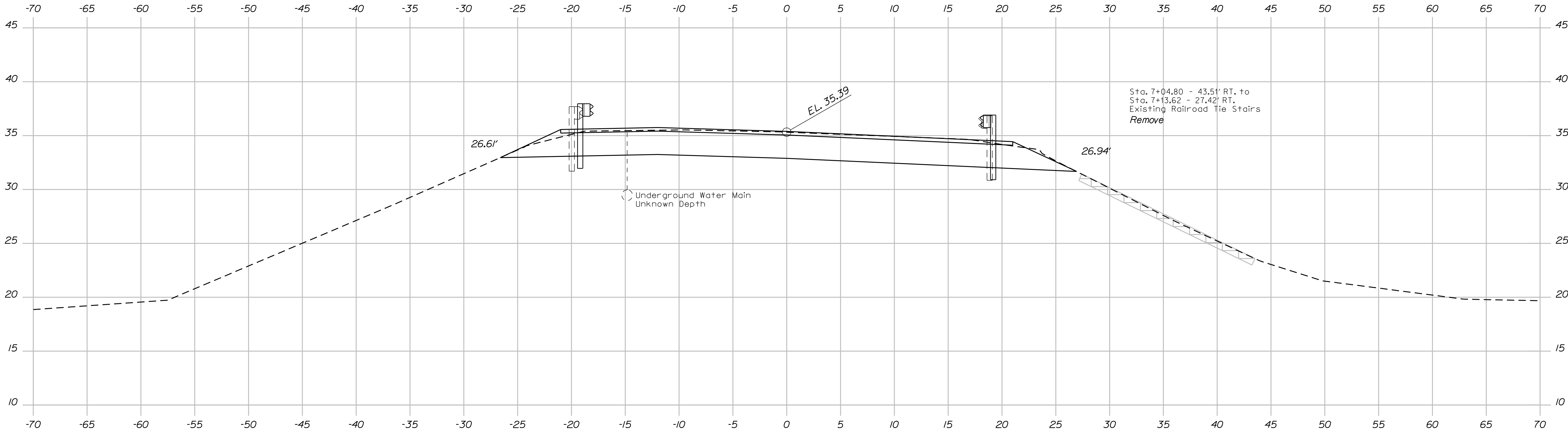
6		SHEET NUMBER		LITTLE BRIDGE MILL BROOK WESTBROOK CUMBERLAND COUNTY		PROJ. MANAGER		N. Benoit	BY	DATE	STATE OF MAINE DEPARTMENT OF TRANSPORTATION	
						DESIGN-DETAILED CHECKED-REVIEWED DESIGN2-DETAILED2 DESIGN3-DETAILED3	K. Constanter C. Weaver	M. Steele	11/28/11	SIGNATURE		
CROSS SECTIONS						REVISIONS 1					BH-1676(100)X	
						REVISIONS 2						
						REVISIONS 3						
						REVISIONS 4						
						FIELD CHANGES					BRIDGE NO. 3987 PIN 16761.00 BRIDGE PLANS	

Username: Craig Weaver

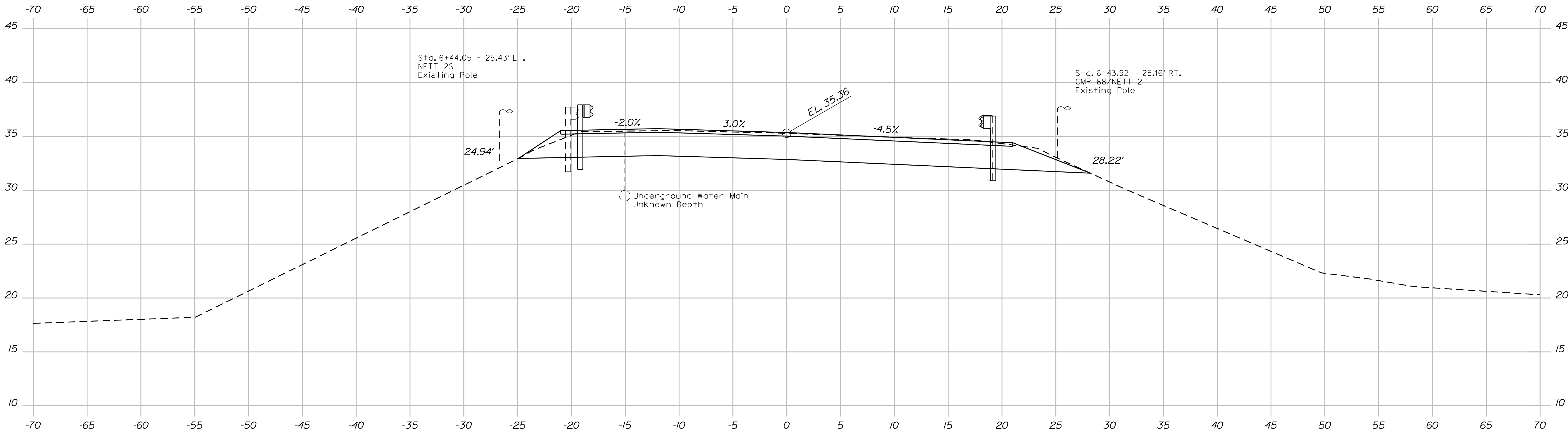
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Division: BRIDGE

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7+00.00



6+50.00

End Transition - Begin Project Sta. 6+50.00



STATE OF MAINE DEPARTMENT OF TRANSPORTATION	BH-1676(100)X	
	PIN	16761.00
	BRIDGE NO.	3987

PROJ. MANAGER N. Benoit	BY K. Conner	DATE 1/23/11	SIGNATURE
			P.E. NUMBER
CHECKED-REVIEWED K. Conner			DATE
DESIGN-DETAILED C. Weaver			
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

LITTLE BRIDGE MILL BROOK WESTBROOK CUMBERLAND COUNTY	CROSS SECTIONS
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SHEET NUMBER
7
OF 14

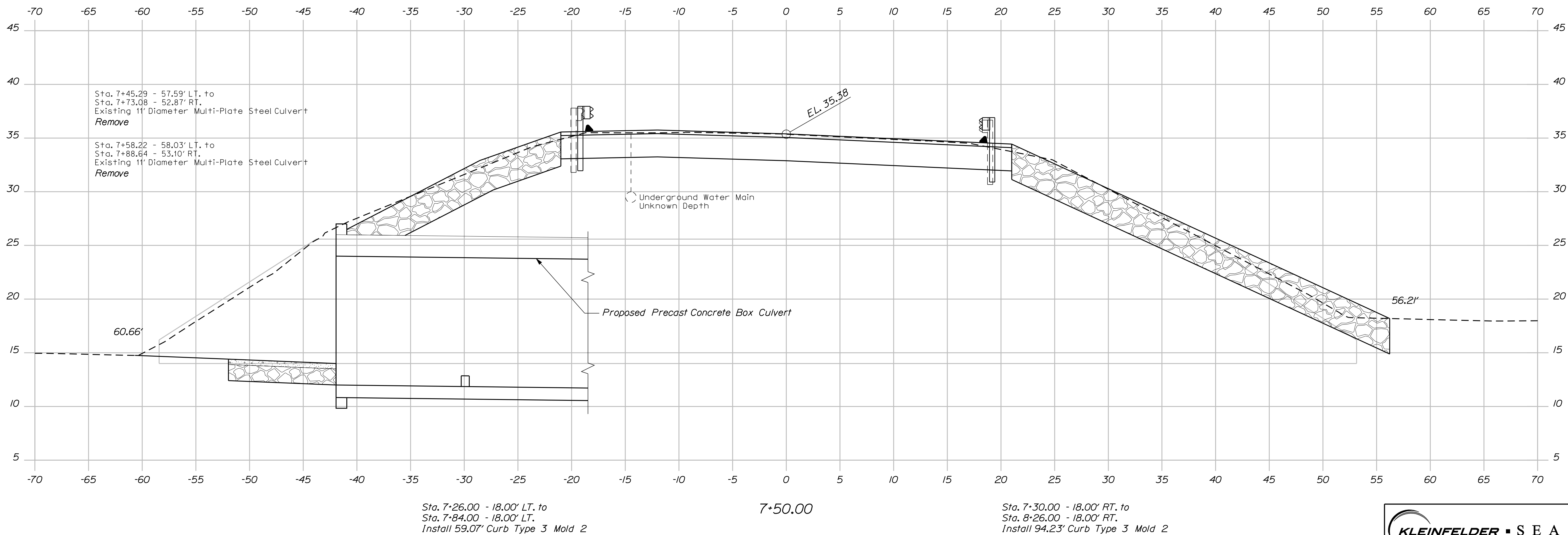
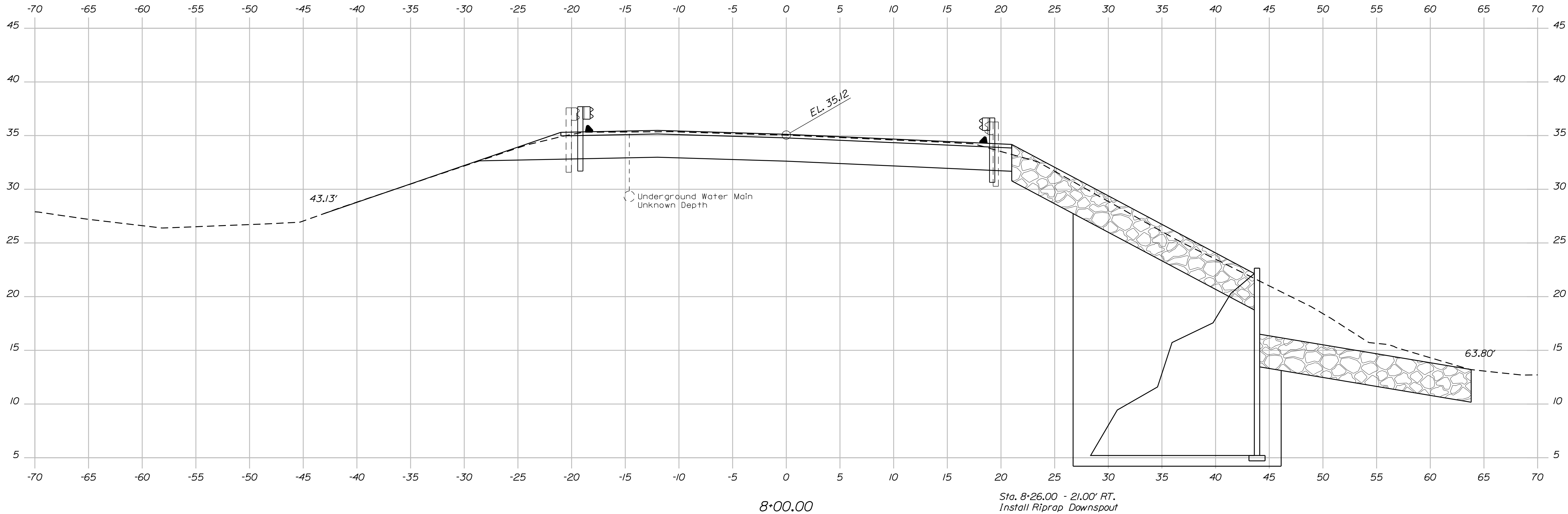
Sta. 6+50.00 to Sta. 7+00.00

Date:4/11/2011

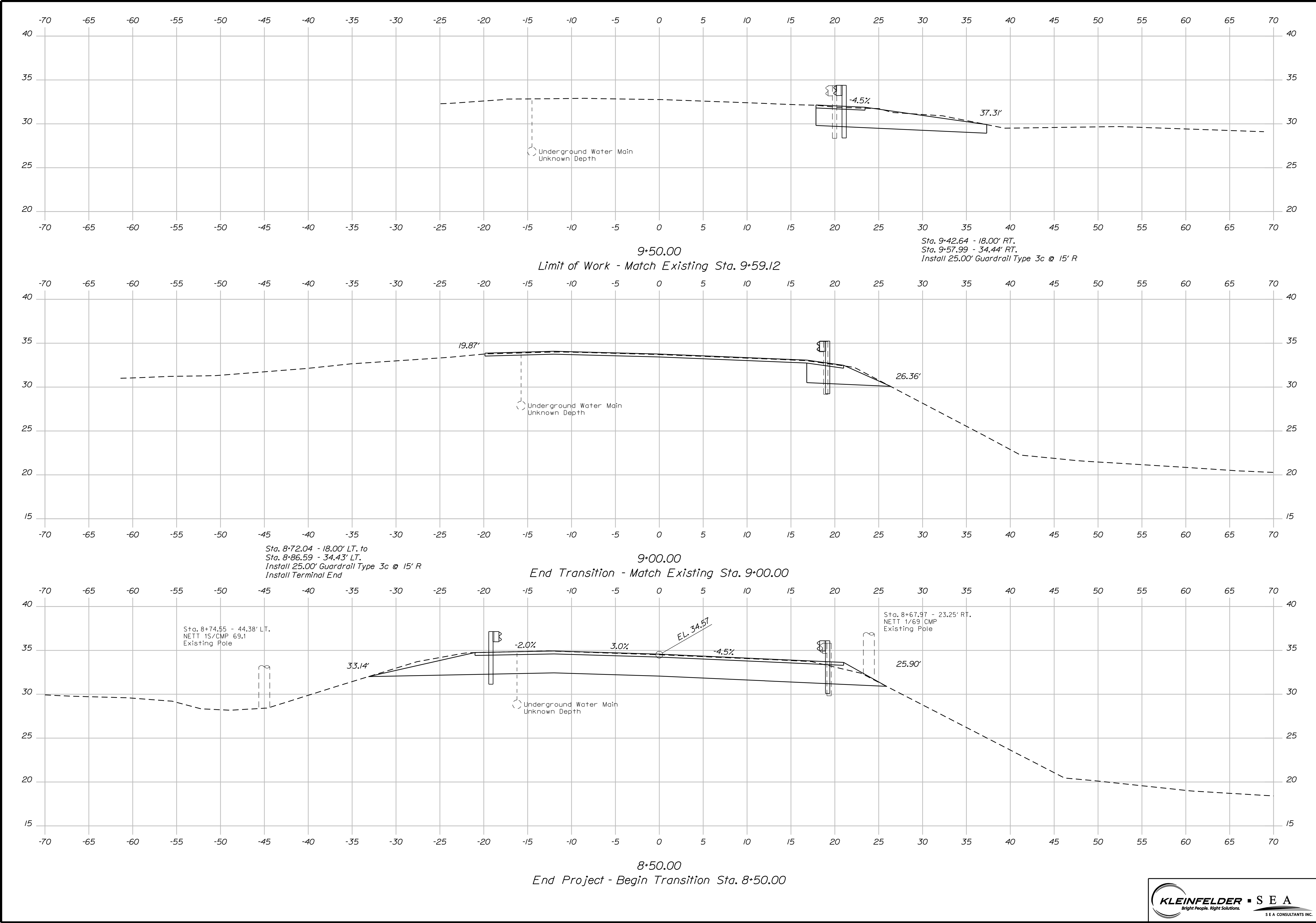
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Division: BRIDGE

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SHEET NUMBER		LITTLE BRIDGE MILL BROOK WESTBROOK CUMBERLAND COUNTY		PROJ. MANAGER		N. Benoit	BY	DATE	STATE OF MAINE DEPARTMENT OF TRANSPORTATION	
				CHECKED-DETAILED DESIGN2-DETAILED2	K. Constanter C. Weaver	M. Steele	11/28/11	SIGNATURE		
CROSS SECTIONS		DESIGN3-DETAILED3		REVISIONS 1					BH-1676(100)X	
				REVISIONS 2						
				REVISIONS 3						
				REVISIONS 4						
		FIELD CHANGES							BRIDGE NO. 3987 PIN 16761.00 BRIDGE PLANS	



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BH-1676(100)X

BRIDGE NO. 3987
PIN 16761.00
BRIDGE PLANS

LITTLE BRIDGE
MILL BROOK
WESTBROOK CUMBERLAND COUNTY

CROSS SECTIONS

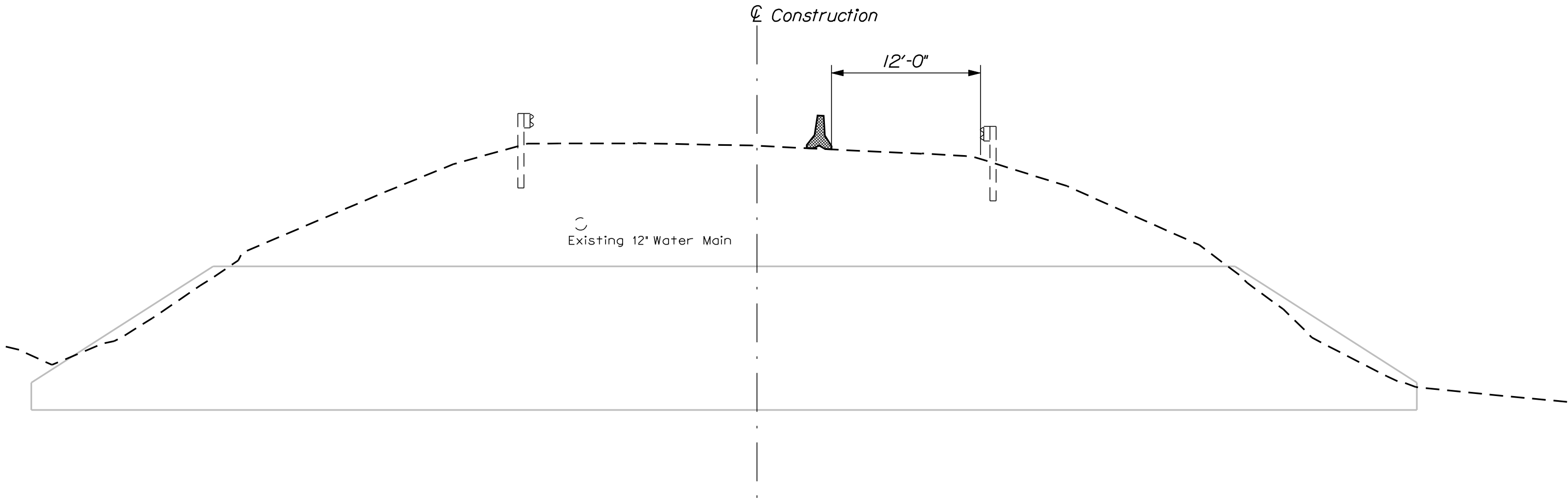
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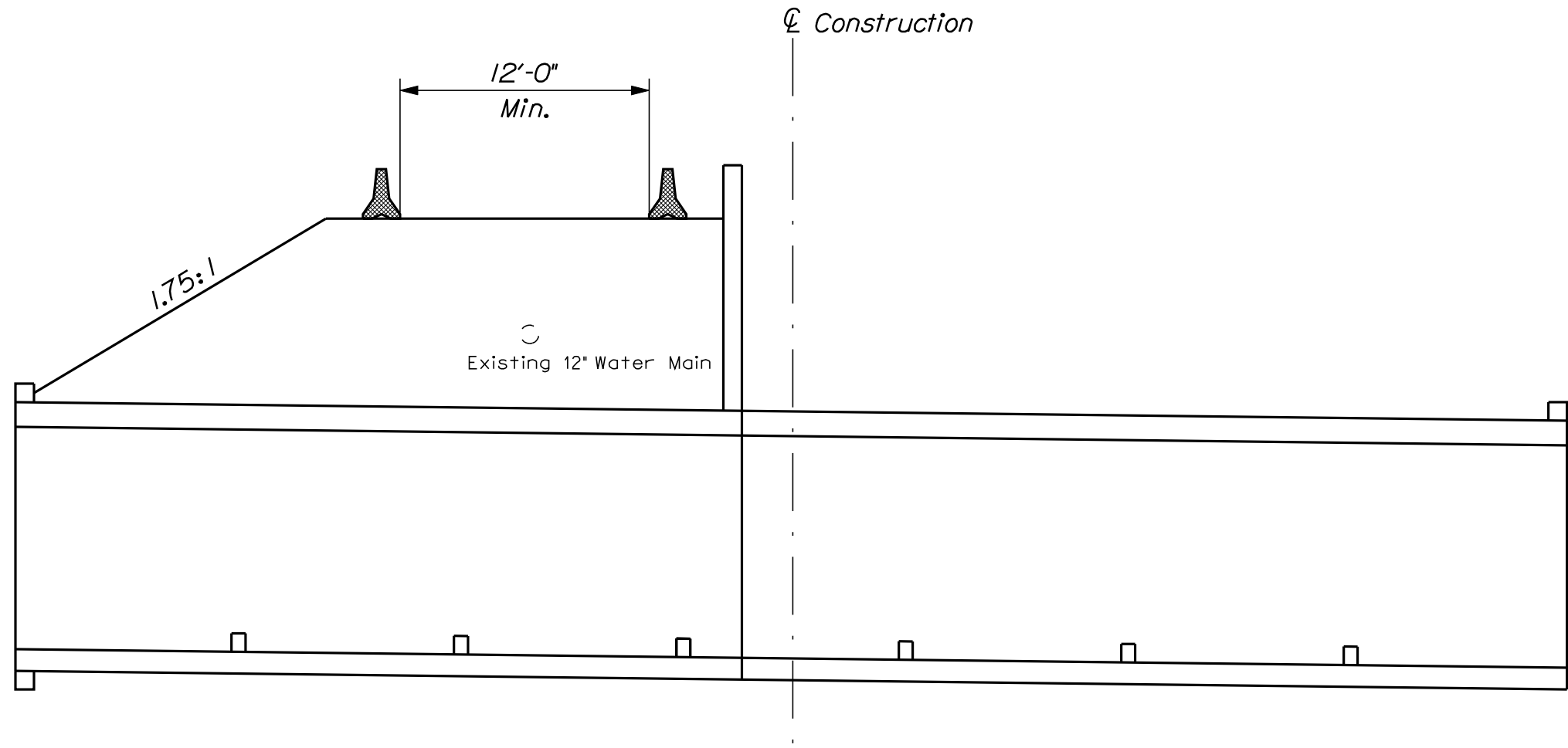
OF 14

PROJ. MANAGER	BY	DATE	SIGNATURE	P.E. NUMBER	DATE
DESIGN-DETAILED	K. Costello	1/28/11			
CHECKED-REVIEWED	M. Steele				
DESIGNS-DETAILED					
DESIGNS-1					
DESIGNS-2					
DESIGNS-3					
DESIGNS-4					
FIELD CHANGES					

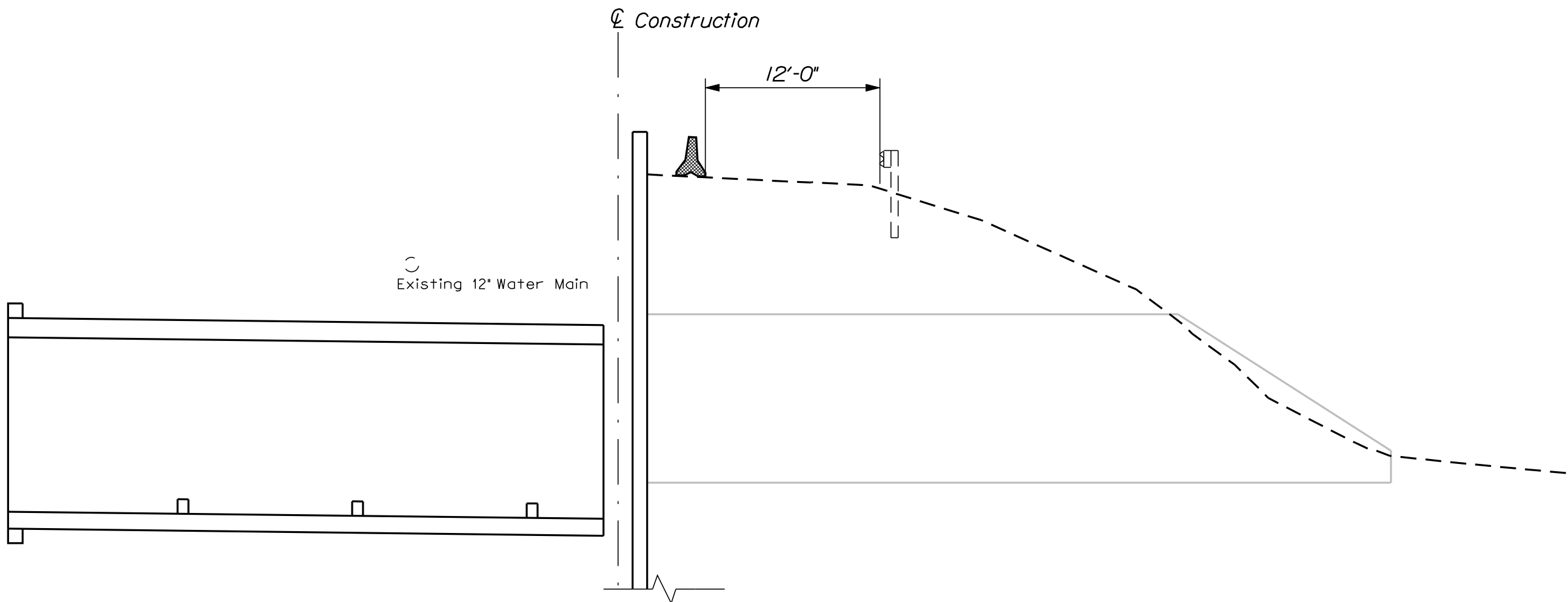




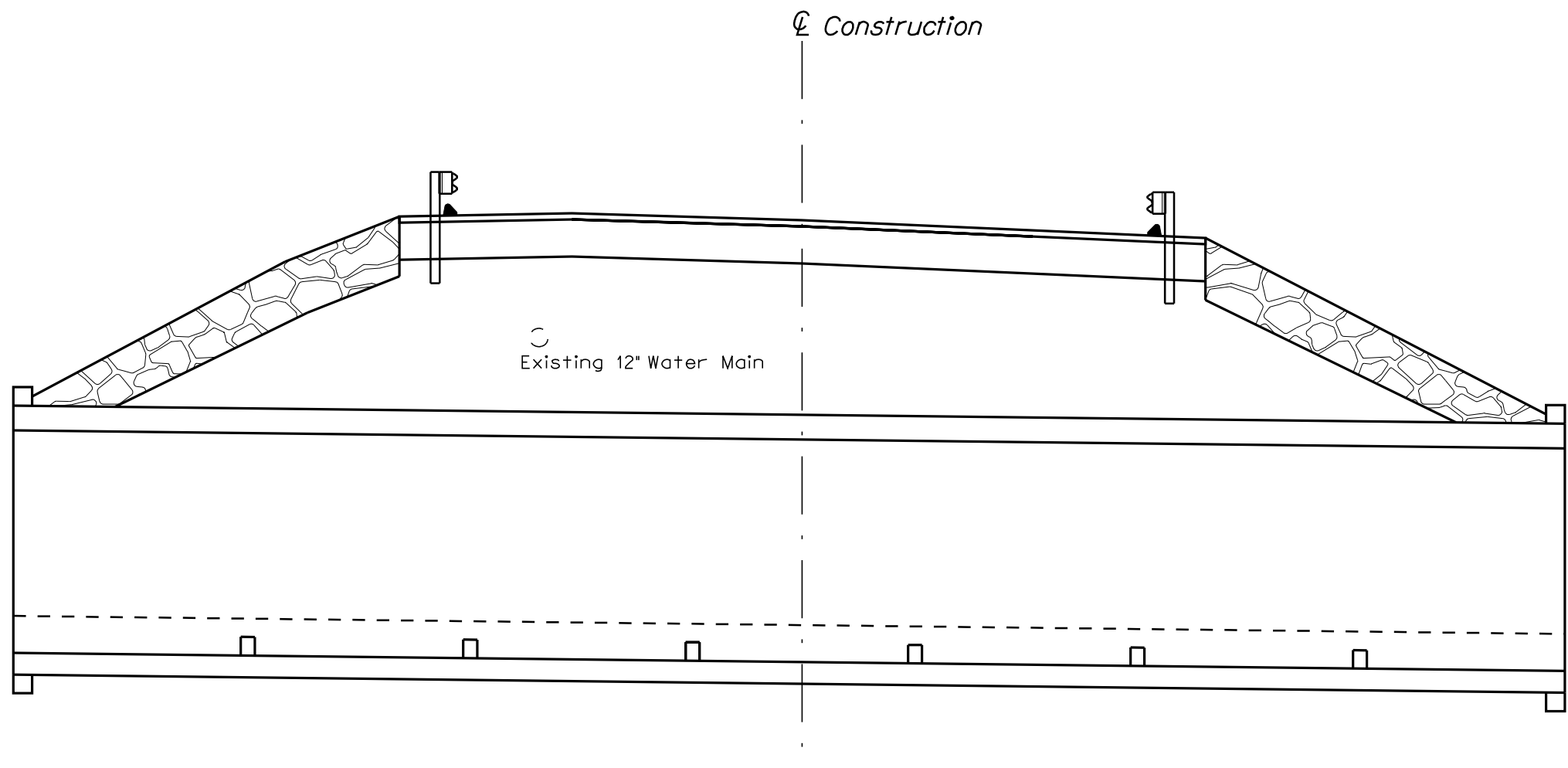
1 - SHIFT TRAFFIC RIGHT



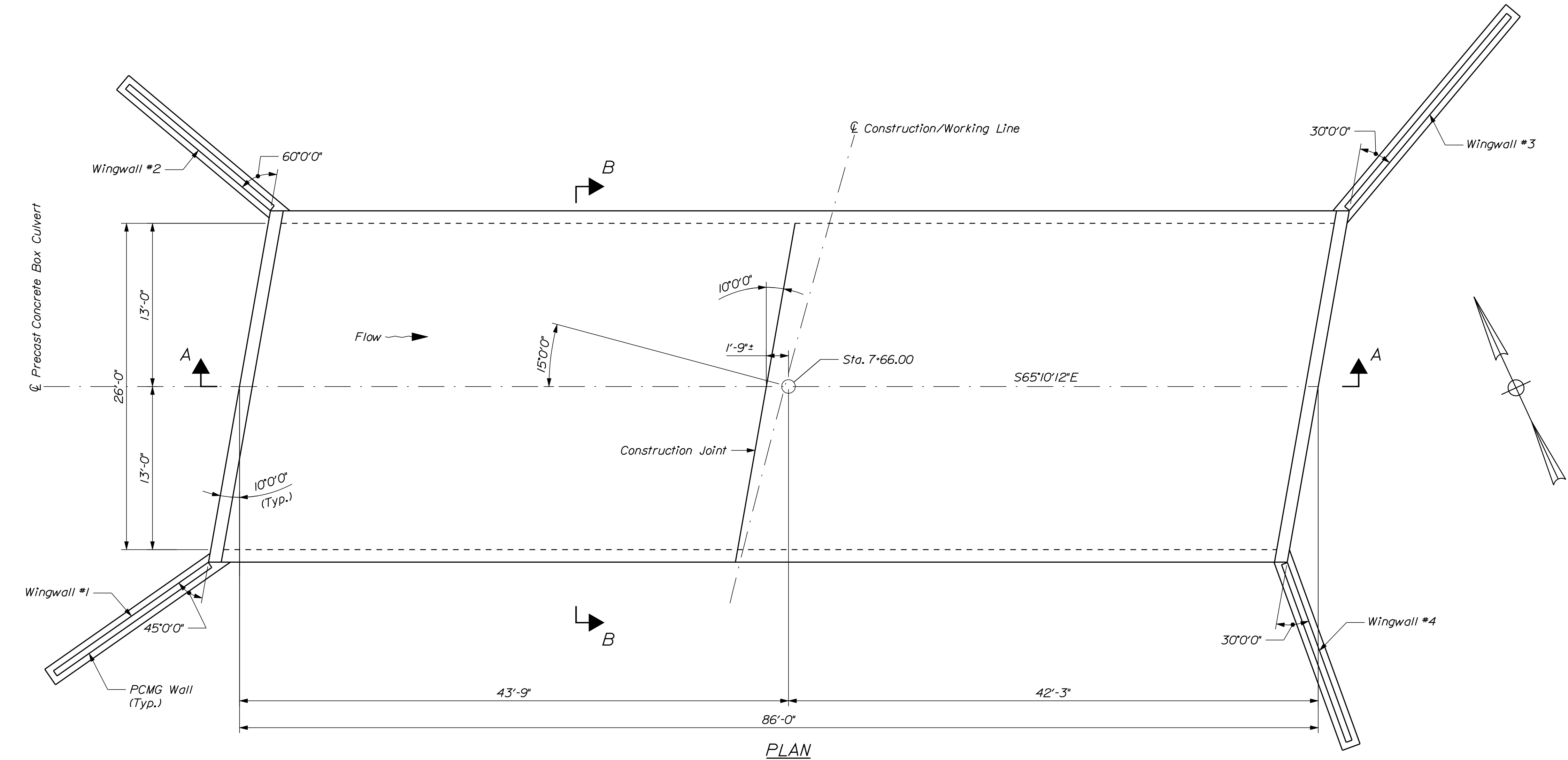
3 - SHIFT TRAFFIC LEFT, REPLACE DOWNSTREAM STRUCTURE



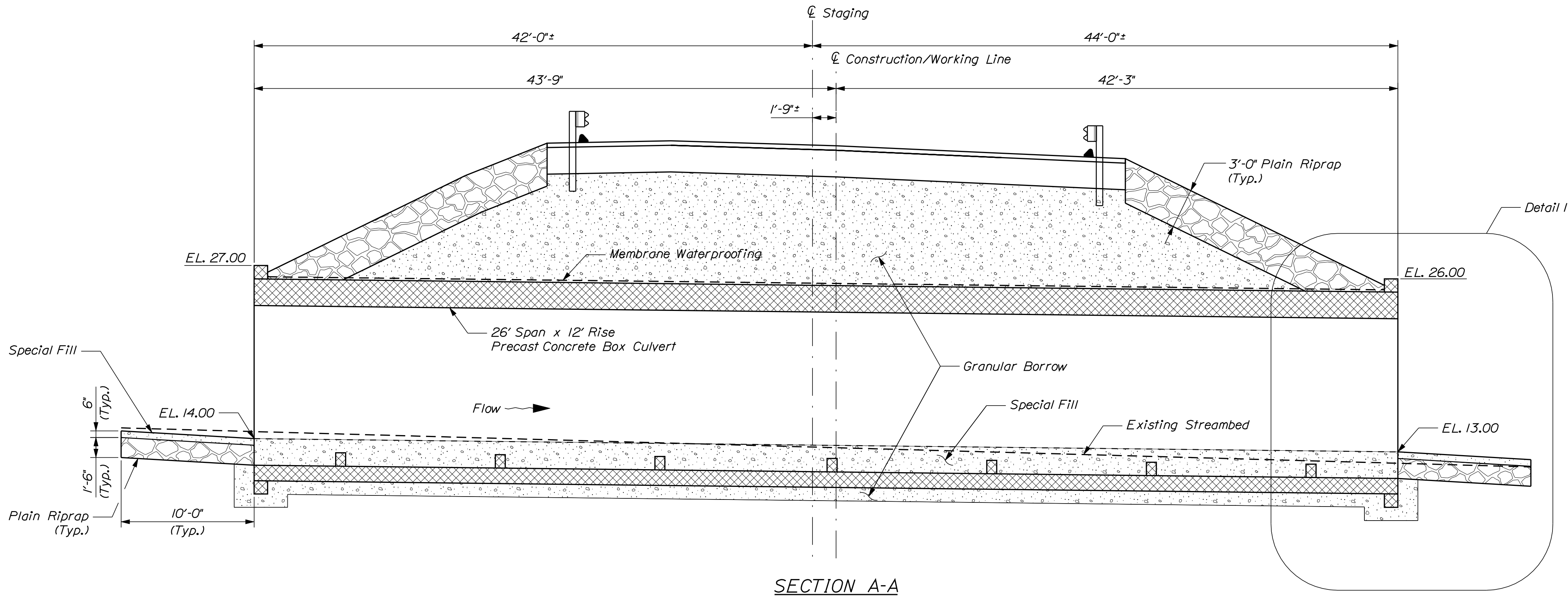
2 - REPLACE UPSTREAM STRUCTURE



4 - FINAL CONDITION



Note: See Sheet 12 for Section B-B

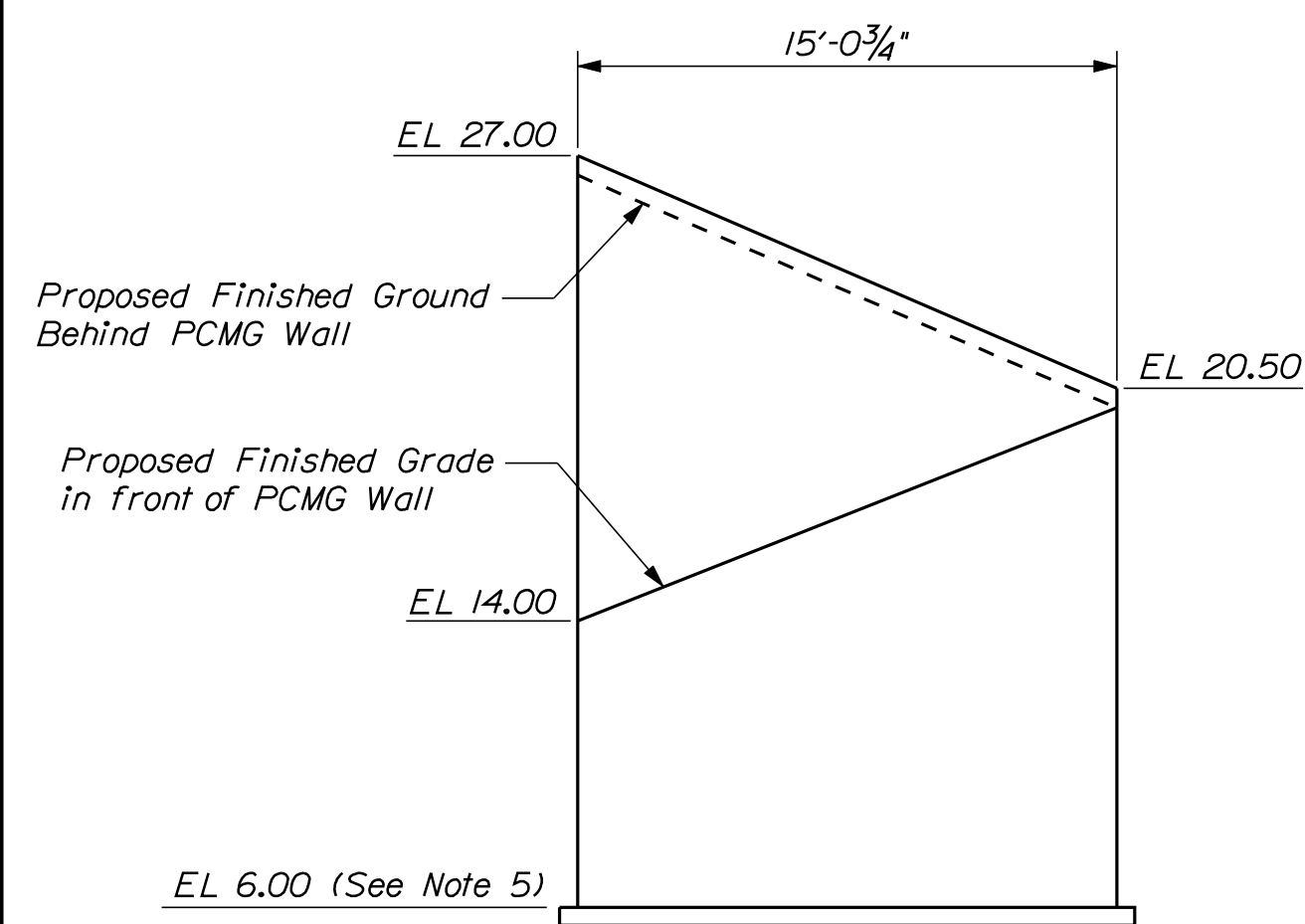


Note: See Sheet 12 for Detail I

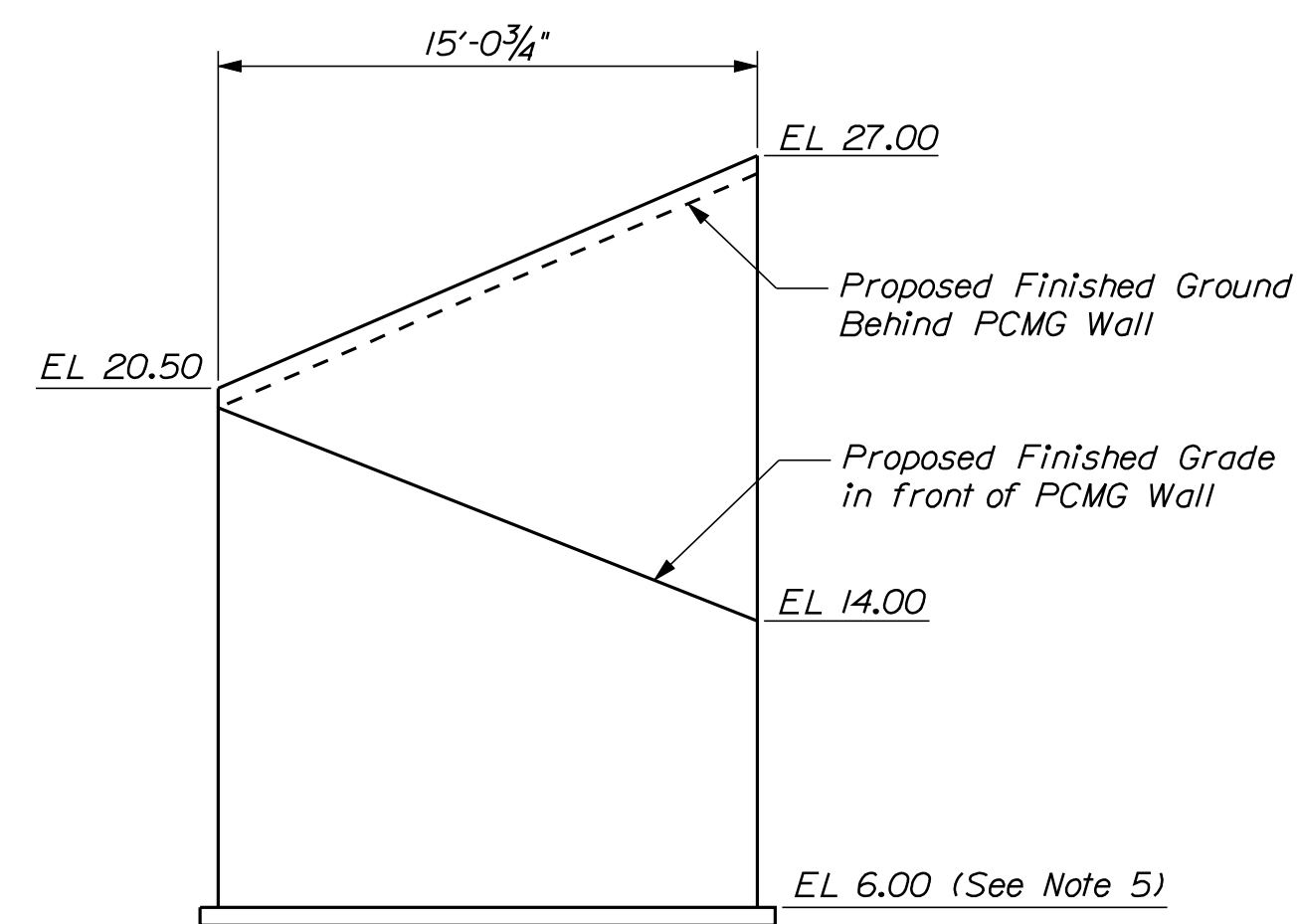
PRECAST CONCRETE BOX NOTES

1. The precast units shall be designed to carry construction loadings with a minimum fill cover of 18 inches over the top of the units.
2. The construction, handling, and assembly of the precast units shall be in accordance with Special Provisions Section 534, Precast Structural Concrete, and with the manufacturer's specifications as applicable.
3. Install standard membrane waterproofing over the top and to 12 inches down the exterior sides of the precast units.

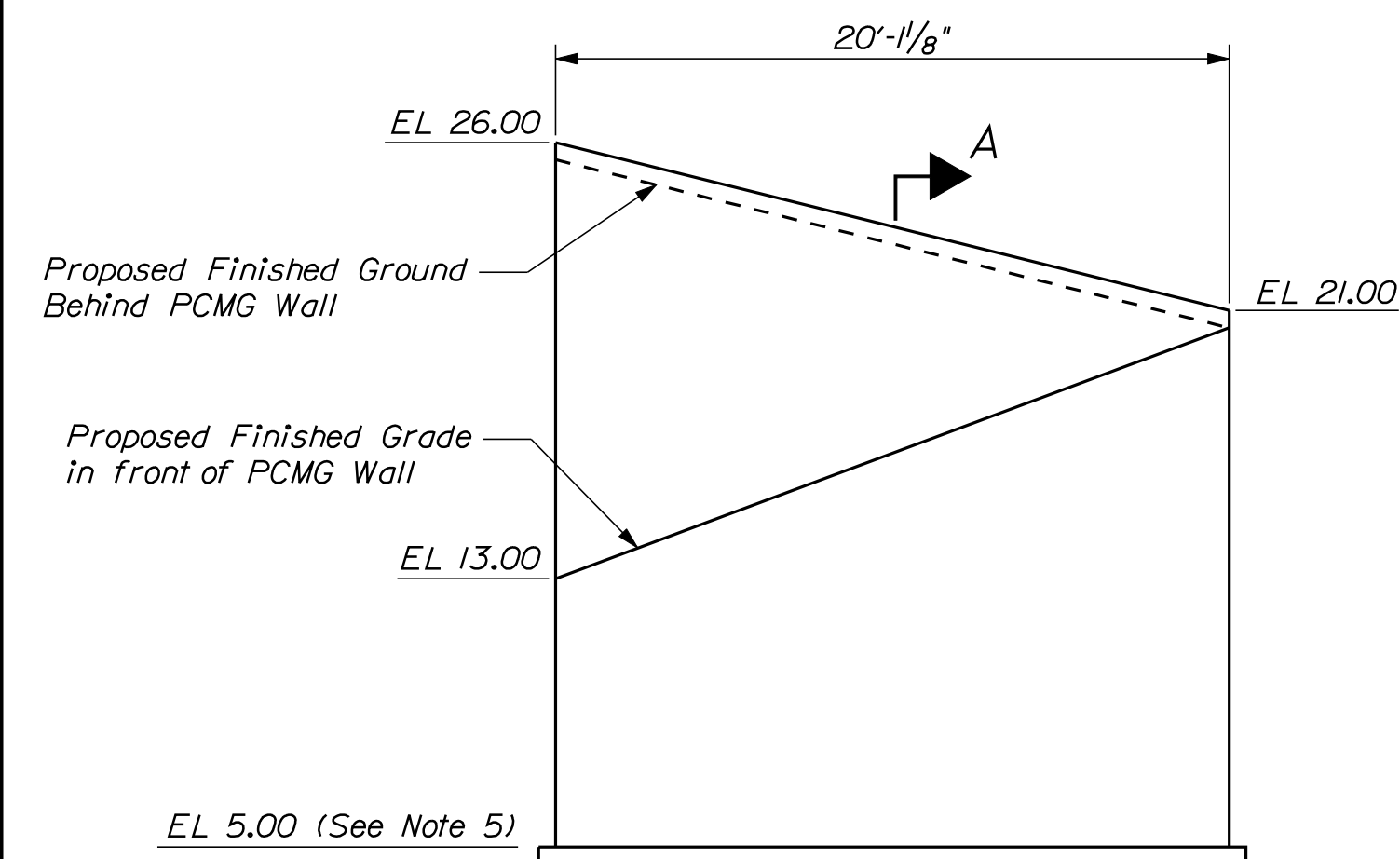
STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		BH-1676(100)X		PIN 16761.00		BRIDGE NO. 3987		BRIDGE PLANS	
LITTLE BRIDGE		MILL BROOK		CUMBERLAND COUNTY		WESTBROOK		BOX CULVERT DETAILS		SHEET NUMBER	
DESIGNED-Detailed		CHECKED-Reviewed		DESIGNED-Detailed		REVISIONS 1		REVISIONS 2		REVISIONS 3	
BY		DATE		SIGNATURE		P.E. NUMBER		DATE		FIELD CHANGES	
N. Benoit		K. Costello		M. Steele		1/23/11					
11		11		11		11		11		11	
OF 14		OF 14		OF 14		OF 14		OF 14		OF 14	



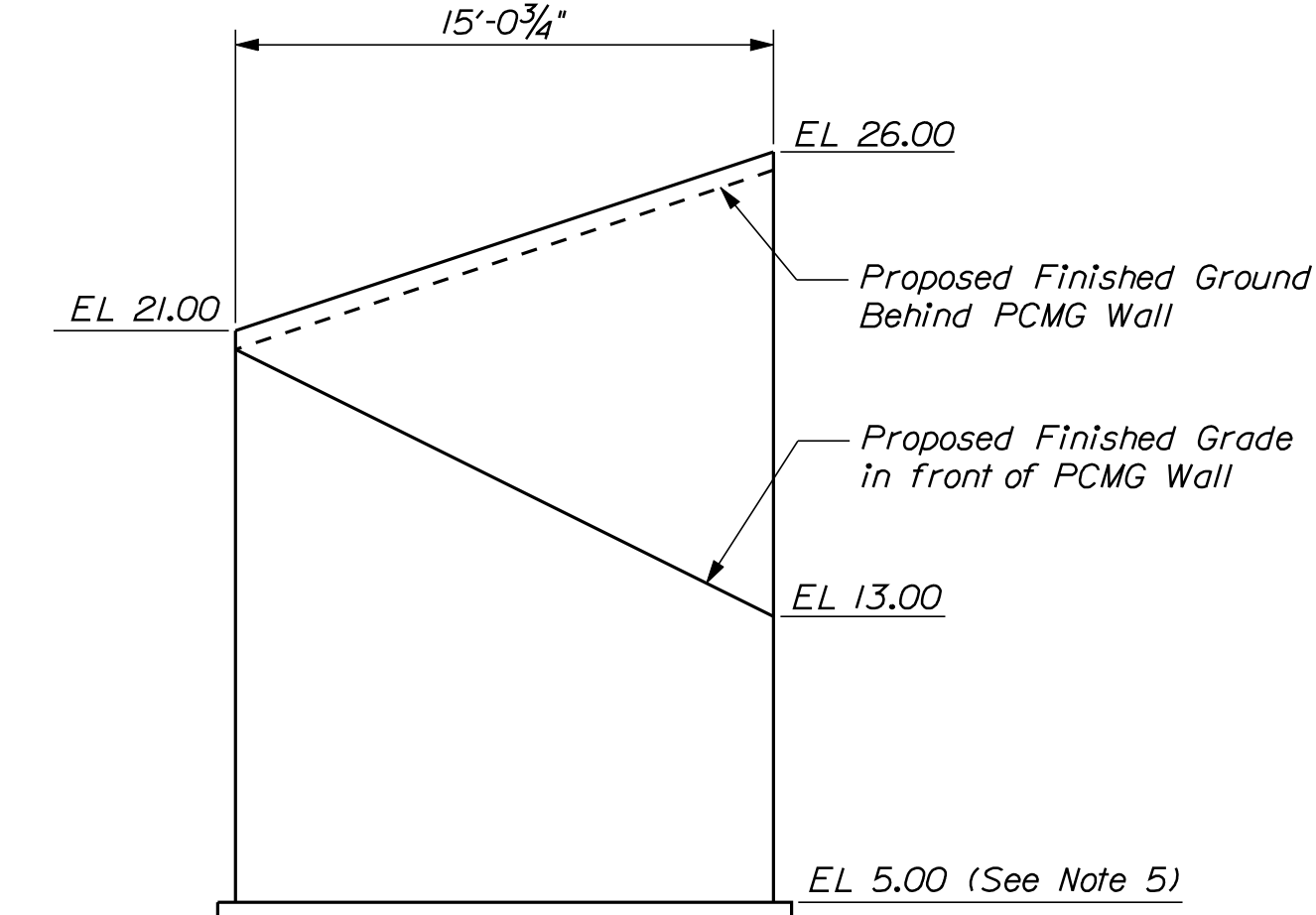
WINGWALL #1 ELEVATION



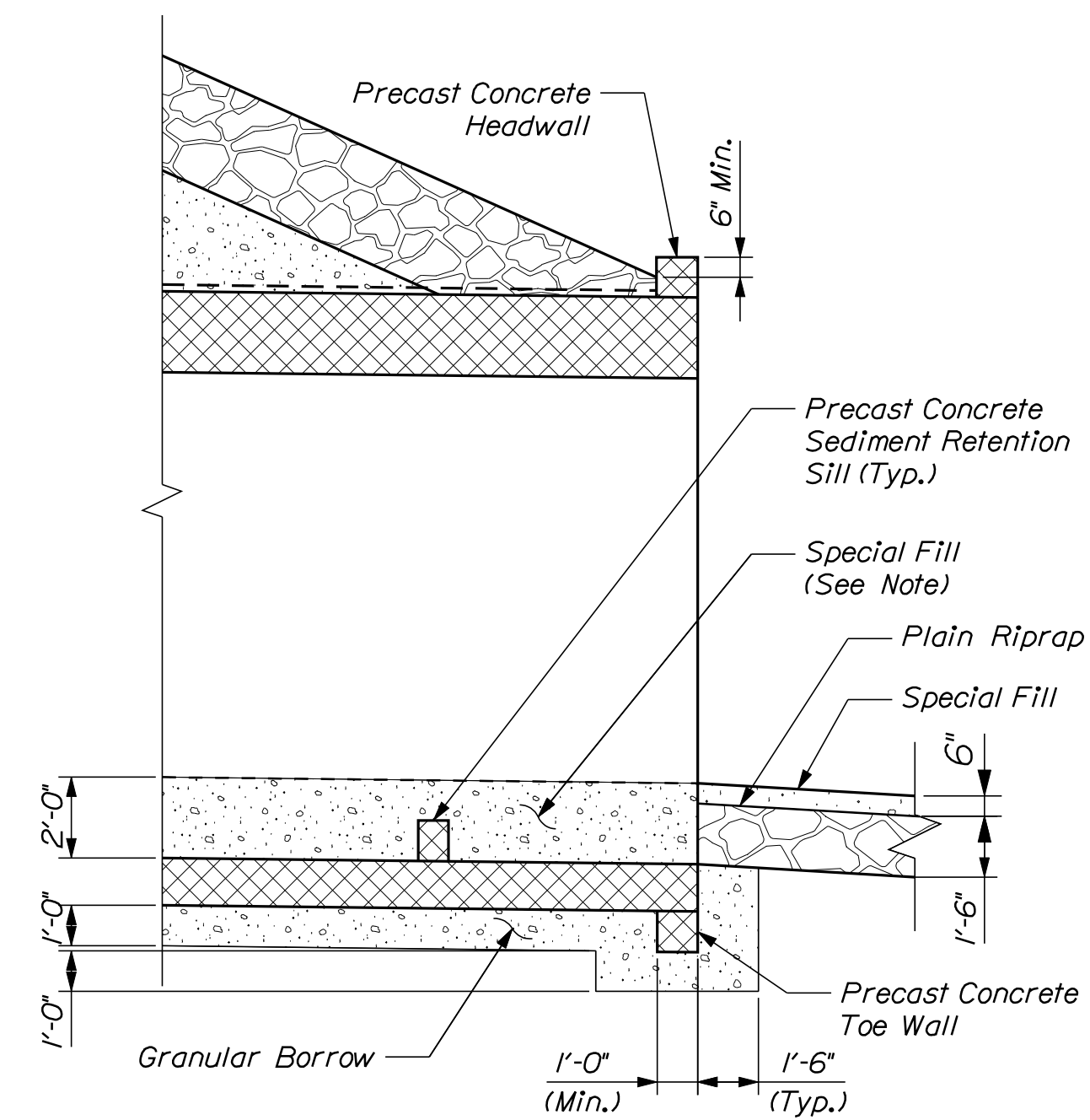
WINGWALL #2 ELEVATION



WINGWALL #3 ELEVATION



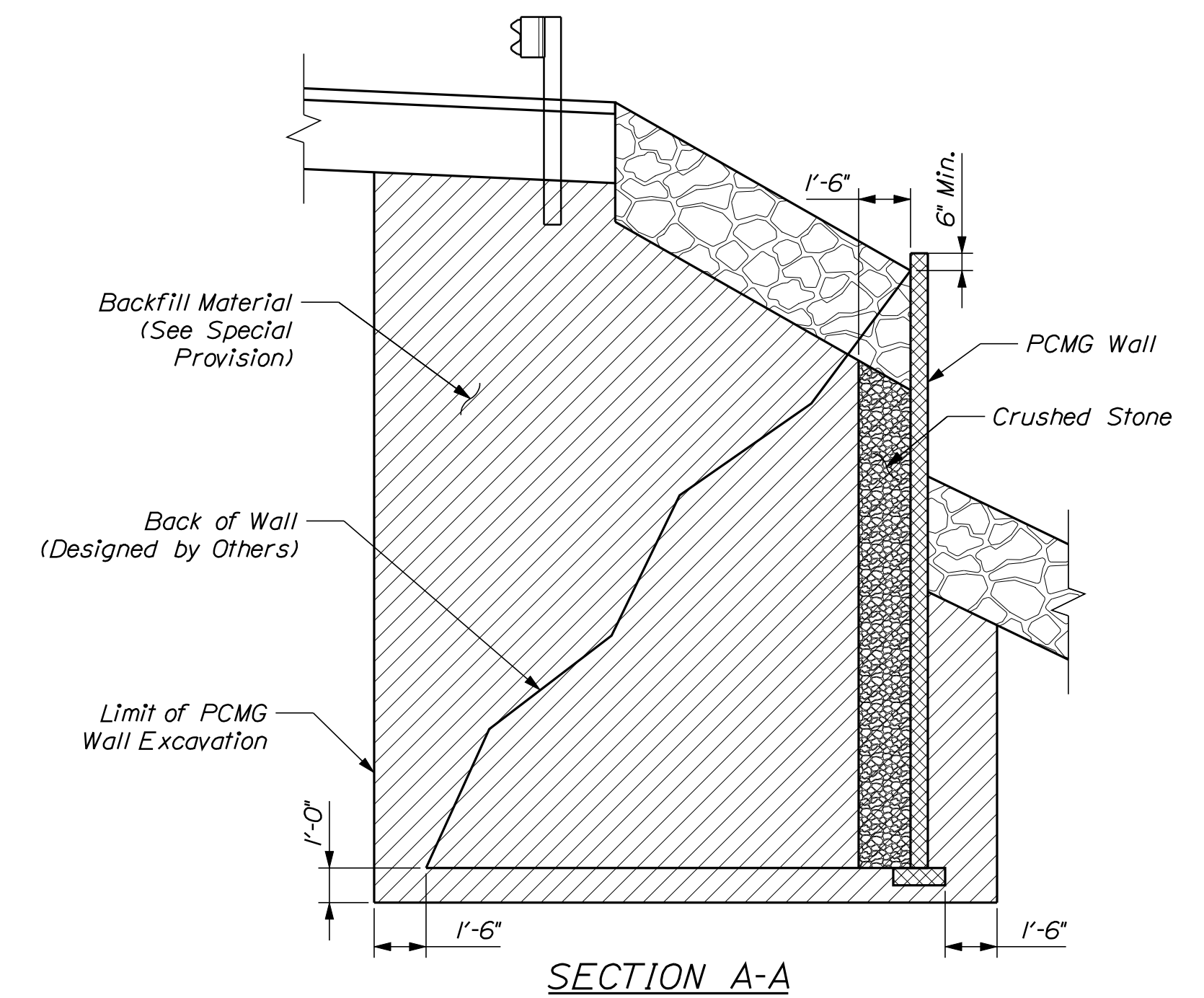
WINGWALL #4 ELEVATION



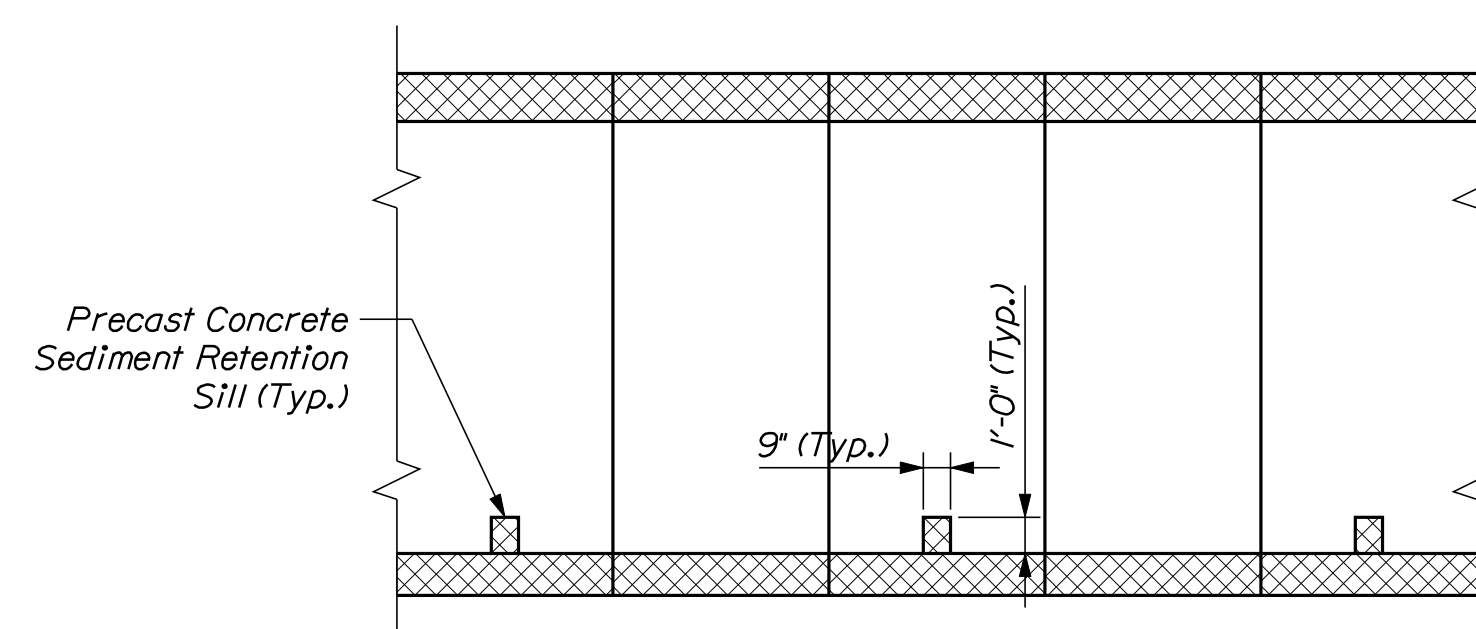
DETAIL 1

Note:

Box Culvert shall be filled with Excavated Dredge and/or Granular Underwater Borrow according to Special Provision 203, Special Fill. Payment shall correspond to Item 203.33, Special Fill.



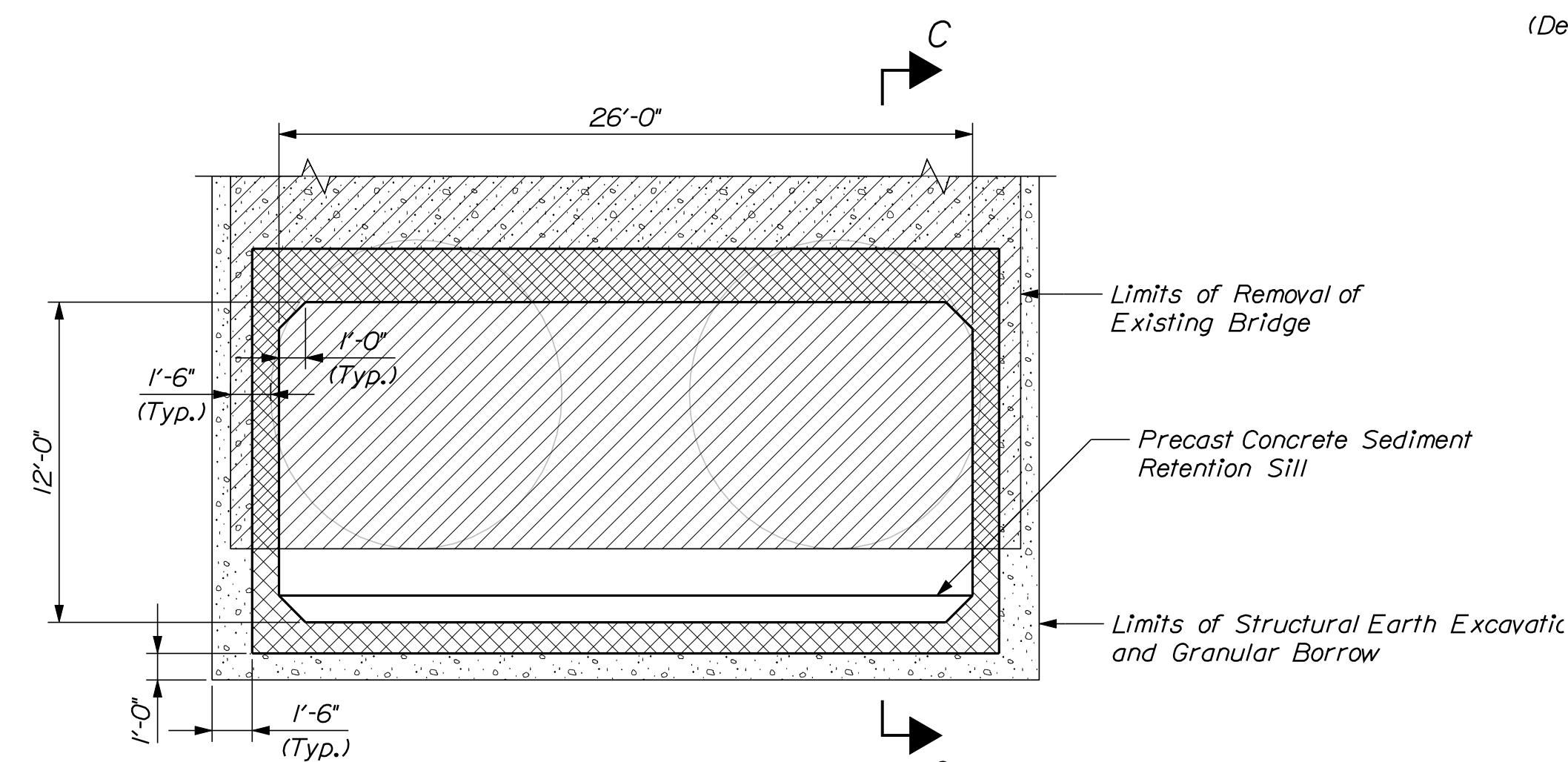
SECTION A-A



SECTION C-C

Notes:

1. Sediment Retention Sills shall be spaced at a maximum of 12 feet.
2. Payment for Toe Walls, Headwalls, and Sediment Retention Sills shall be incidental to Item 534.71, Precast Concrete Box Culvert.



SECTION B-B

1. The Contractor shall provide a Prefabricated Concrete Modular Gravity (PCMG) Wall in accordance with Special Provision Section 635. The PCMG Wall shall be designed and stamped by a Registered Professional Engineer and the design shall be submitted to the Resident for review. Plan details are shown for estimating purposes only.

2. The precast units shall be one of the following, or equal:

"T-Wall" as manufactured by a licensed manufacturer of Neel Company

"DoubleWal" as manufactured by a licensed manufacturer of DoubleWal Corp., Plainville, Connecticut.

3. For the strength limit state, the factored bearing pressure for PCMG Walls shall not exceed the factored bearing resistance of 3 ksf for wall system bases less than 10 feet wide and 4 ksf for bases 12 to 15 feet wide. The factored bearing pressure for the service limit state shall not exceed the factored bearing resistance of 3 ksf.

4. Cofferdams for the PCMG Wall installation will be included with Pay Item No. 511.07, Cofferdam.

5. Elevation at bottom of PCMG Wall may be lowered for constructability at no additional cost to the Department.

12	OF 14	SHEET NUMBER	WESTBROOK		CUMBERLAND COUNTY		DESIGN-DETAILED	K. Costantini	1/28/11	SIGNATURE	STATE OF MAINE DEPARTMENT OF TRANSPORTATION BH-1676(100)X BRIDGE NO. 3987 PIN 16761.00 BRIDGE PLANS
			MILL BROOK				CHECKED-REVIEWED	M. Steele			
			LITTLE BRIDGE				DESIGN-DETAILED02		P.E. NUMBER		
							DESIGN-DETAILED03			DATE	
							REVISIONS 1				
							REVISIONS 2				
							REVISIONS 3				
							REVISIONS 4				
							FIELD CHANGES				

1

East Bridge St.

48 x 12

DETOUR

30 x 24

2

East Bridge St.

48 x 12

DETOUR

30 x 24

3

East Bridge St.

48 x 12

DETOUR

30 x 24

4

East Bridge St.

48 x 12

END
DETOUR

30 x 24

5

DETOUR
AHEAD

48 x 48

6

NO
OUTLET

48 x 48

BUSINESS
ACCESS
ONLY

32 x 36

7

DO NOT
ENTER

36 x 36

WRONG
WAY

36 x 24

8

NO
THRU
TRAFFIC

48 x 48

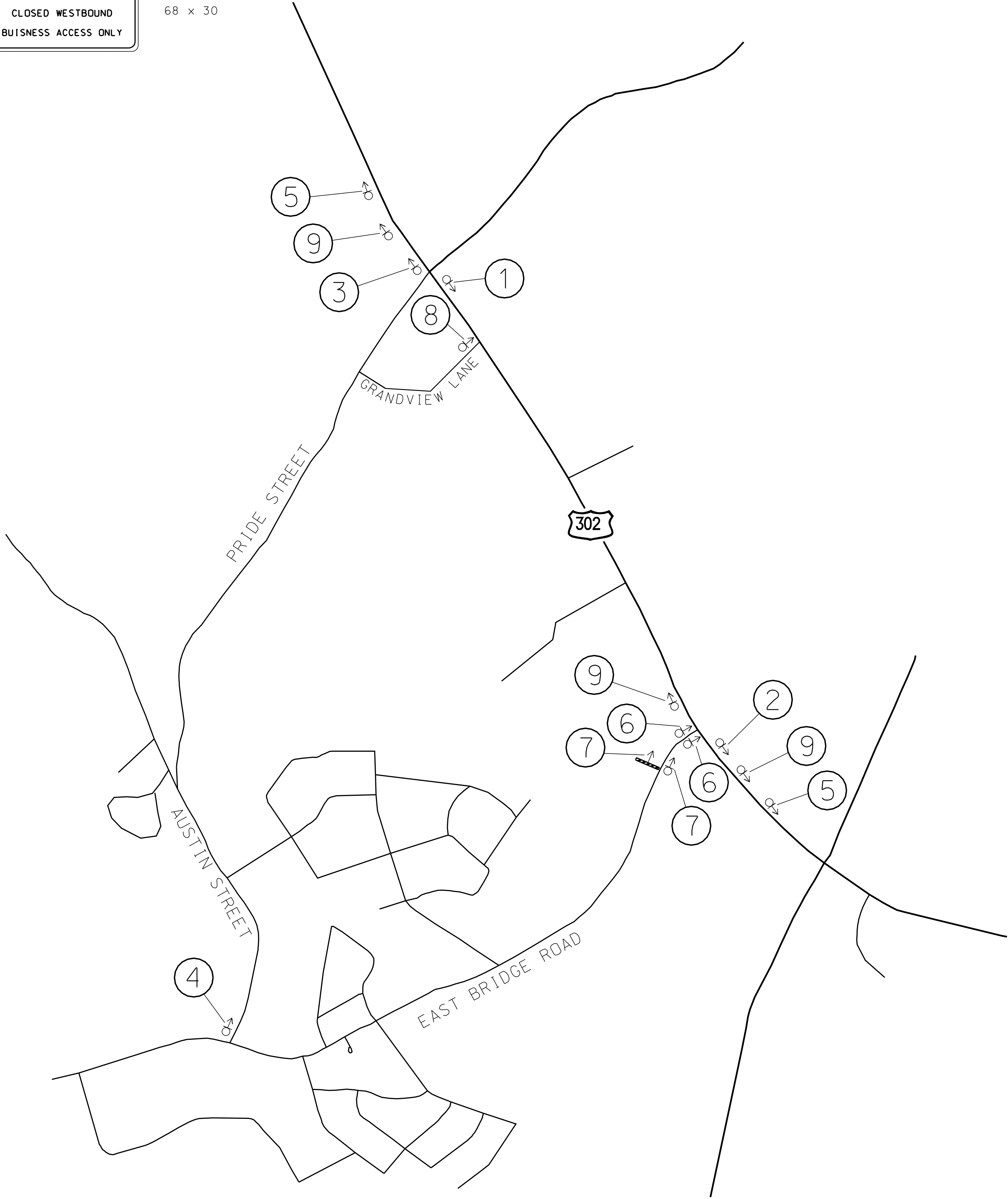
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EAST BRIDGE ST.

68 x 30

CLOSED WESTBOUND

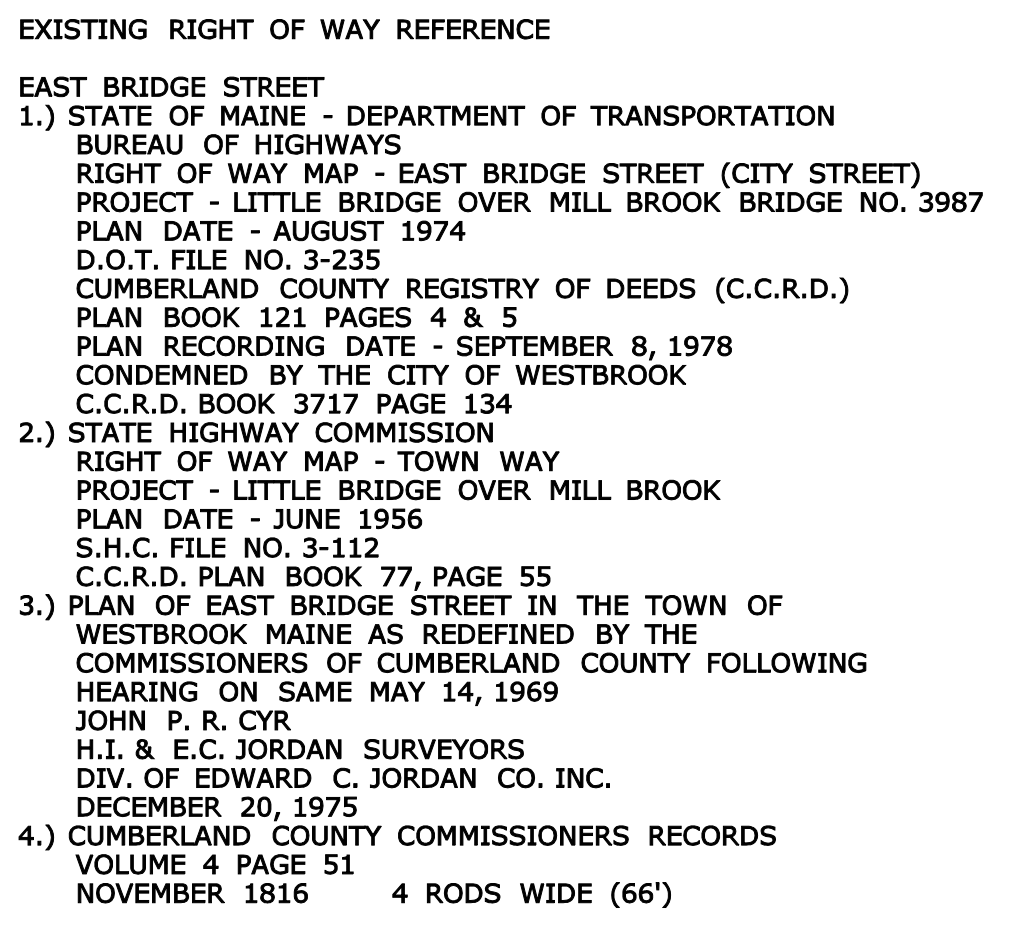
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NOT TO SCALE

STATE OF MAINE DEPARTMENT OF TRANSPORTATION BH-1676(100)X BRIDGE NO. 3987 PIN 16761.00 BRIDGE PLANS				
	PROJ. MANAGER CHECKED-REVIEWED DESIGNED-DETAILED REVISIONS 1 REVISIONS 2 REVISIONS 3 REVISIONS 4 FIELD CHANGES		DATE BY N. Benoit	SIGNATURE P.E. NUMBER DATE
	LITTLE BRIDGE MILL BROOK WESTBROOK CUMBERLAND COUNTY DETOUR PLAN		SHEET NUMBER 13 OF 14	

File name: ... \BRIDGE\MSTA\014_RWPLAN1.dgn



ITEM	TECH	CHECKED
BASE MAP		
EXIST. R/W	G.L.L.	C.W.K.
PROP. LINES	G.L.L.	
AREAS	G.L.L.	J.C.C.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016
WESTBROOK
RIGHT OF WAY MAP

REVISIONS				PLAN FILED IN PLAN BOOK PAGE COUNTY RECORD						DAVID A. COLE COMMISSIONER KENNETH L. SWEENEY CHIEF ENGINEER DATE 	STATE AID HIGHWAY NO. 3 EAST BRIDGE STREET WESTBROOK CUMBERLAND COUNTY FEDERAL PROJECT NO. BH-1676(100)X			SHEET NUMBER
NO.	DATE	DESCRIPTION	BY	NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE		NOVEMBER 2010 RIGHT-OF-WAY MAP SCALE 1" = 25' SHEET 1 OF 1 D.O.T. FILE NO. 3-569			14

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION



SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Fifth Edition 2010, and Interim Specifications through 2010.

DESIGN LOADING

Live Load HL - 93 Modified

TRAFFIC DATA

Current (2010) AADT 15,340
Future (2030) AADT 16,870
DHV - % of AADT 11%
Design Hour Volume 1856
Heavy Trucks (% of AADT) 7%
Heavy Trucks (% of DHV) 3%
Directional Distribution (% of DHV) 70%
18 kip Equivalent P 2.0 385
18 kip Equivalent P 2.5 367
Design Speed (mph) 45

HYDROLOGIC DATA

Drainage Area 9.1 sq mi
Design Discharge (Q50) 389 cfs
Check Discharge (Q100) 445 cfs
Headwater Elevation (Q50) 168.6 ft
Headwater Elevation (Q100) 168.9 ft
Discharge Velocity - Culvert 1 (Q50) 9.50 fps
Discharge Velocity - Culvert 2 (Q50) 12.27 fps
Discharge Velocity - Culvert 1 (Q100) 9.89 fps
Discharge Velocity - Culvert 2 (Q100) 12.82 fps
Headwater Elevation (Q1.1) 166.5 ft
Discharge Velocity - Culvert 1 (Q1.1) 6.02 fps
Discharge Velocity - Culvert 2 (Q1.1) 8.09 fps
Headwater Elevation (Q25) 168.3 ft

MATERIALS

Concrete:
Precast Class "P"
All Other Class "A"
Reinforcing Steel ASTM A 615/A 615M, Grade 60

Structural Steel:
All Material (except as noted) ASTM A 709, Grade 50W (unpainted)
High Strength Bolts ASTM A 325, Type 3

BASIC DESIGN STRESSES

Concrete f'c = 4,350 psi
Precast Concrete f'c = 6,000 psi
Reinforcing Steel fy = 60,000 psi
Structural Steel:
ASTM A 709, Grade 50W Fy = 50,000 psi
ASTM A 709, Grade 36 Fy = 36,000 psi
ASTM A 325 Fu = 120,000 psi

UTILITIES

Central Maine Power Company
Portland Water District
FairPoint Communications
Time Warner Cable

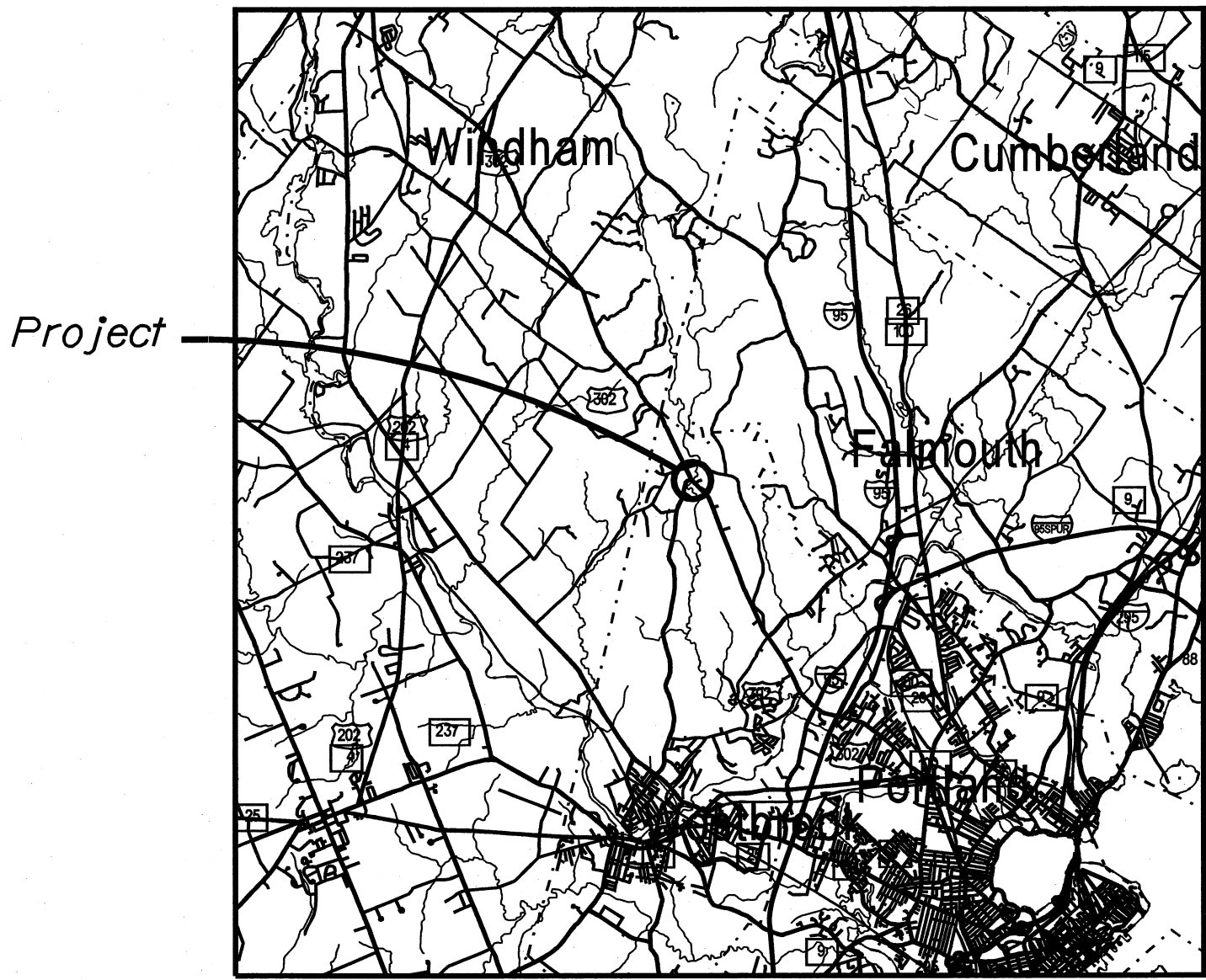
MAINTENANCE OF TRAFFIC

Maintain two paved 12'-0" wide lanes of traffic throughout construction.

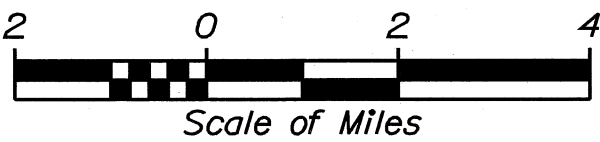
LIST OF DRAWINGS

Title Sheet 1
Estimated Quantities & Notes 2
Plan 3
Profiles 4-5
Boring Location Plan 6
Interpretive Subsurface Profile 7
Boring Logs 8
Cross Sections 9-17
Designer's Assumed Construction Sequence 18
Box Culvert Details 19-20
Right of Way Map 21
Utility - Water Main Replacement Following Kleinfelder/S E A Plans

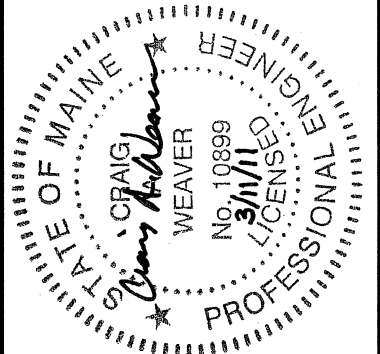
WESTBROOK
CUMBERLAND COUNTY
MILL BROOK BRIDGE
OVER
MILL BROOK
ROUTE 302
NH-1709(204)E
PROJECT LENGTH 0.104 mi.
BRIDGE REPLACEMENT
BRIDGE NO. 3467



LOCATION MAP



STATE OF MAINE DEPARTMENT OF TRANSPORTATION	APPROVED	DATE
	<i>[Signature]</i>	4/4/11
COMMISSIONER: <i>[Signature]</i>		
CHIEF ENGINEER: <i>[Signature]</i>		

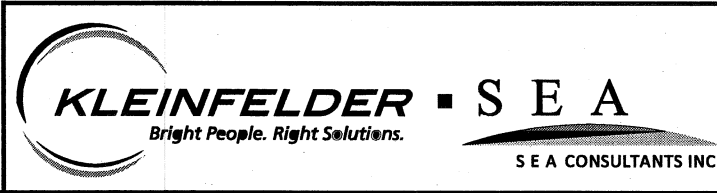


SIGNATURE	P.E. NUMBER	DATE
<i>[Signature]</i>		

PROJECT INFORMATION		CONSULTANTS	PROJECT RESIDENT	CONTRACTOR	PROJECT COMPLETION DATE
PROGRAM	BRIDGE				
		NATE BENOIT			
		CRAIG WEAVER			
		KLEINFELDER/SEA CONSULTANTS			

WESTBROOK MILL BROOK BRIDGE	TITLE SHEET

SHEET NUMBER
1
OF 21



Date: 3/10/2011

Username: kris.constanzer

Division: BRIDGE

Filename: \BRIDGE\NMSTA\001_Title.dgn

PIN 17092.04

NH-1709(204)E

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GENERAL CONSTRUCTION NOTES

1. For easements, construction limits and right of way lines, refer to Right of Way Map.

2. The clearing limits as shown on the plans are approximate. The exact limits will be established in the field by the Resident. Payment for clearing will be considered incidental to Contract items.

3. All utility facilities shall be adjusted by the respective utilities unless otherwise noted.

4. Do not excavate for Aggregate Subbase Course where existing material is suitable as determined by the Resident.

5. In areas where the Resident directs the Contractor not to excavate to the subgrade line shown on the plans, payment for removing existing pavement grubbing, shaping, ditching, and compacting the existing subbase and layers of new subbase 6 inches or less thick will be made under appropriate equipment rental items.

6. All embankment material, except as otherwise shown, placed below EL. 169 shall be Granular Borrow meeting the requirements of Subsection 703.19, Material for Underwater Backfill.

7. Place 4' deep heavy riprap on all slopes steeper than 2:1.

8. Place loam 2 inches deep on all new or reconstructed sideslopes or as directed by the Resident.

9. Erosion Control Mix may be substituted in those areas normally receiving loam and seed as directed by the Resident. Placement shall be in accordance with Standard Specifications Section 619, Mulch. Payment will be made under Item No. 619.1401, Erosion Control Mix.

10. An NCHRP350 compliant guardrail end treatment shall be installed concurrently with the placement of each section of beam guardrail.

II. Extended-use Erosion Control Blanket, seeded gutters, riprap downspouts, and other gutters lined with Stone Ditch Protection shall be constructed after paving and shoulder work is completed, where it is apparent that runoff will cause continual erosion. Payment will be made under the appropriate Contract items.

12. Project information referred to below may be accessed at the following MaineDOT web address: <http://www.maine.gov/mdot/comprehensive-list-projects/project-information.php>.

13. The hydrologic report of the bridge site may be accessed at the MaineDOT web address. The hydrologic report is based on MaineDOT's interpretation of the information obtained for the subject site. No assurance is given that the information or the conclusions of the report will be representative of actual conditions at the time of construction.

14. The project geotechnical report titled: Geotechnical Design Report for the Replacement of Mill Brook Bridge over Mill Brook Westbrook, Maine, Soils Report No. 2010-31, November 23, 2010 may be accessed at the MaineDOT web address.

15. Geotechnical information furnished or referred to in this plan set is for the use of the Bidders and the Contractor. No assurance is given that the information or interpretations will be representative of actual subsurface conditions at the construction site. MaineDOT will not be responsible for the Bidders' or Contractor's interpretations of, or conclusions drawn from, the geotechnical information. The boring logs contained in the plan set present factual and interpretive subsurface information collected at discrete locations. Data provided may not be representative of the subsurface conditions between the boring locations.

16. Quantities included for pay items measured and paid for by Lump Sum are estimated quantities and are provided by MaineDOT for informational purposes only. Lump Sum pay items will be paid for at the Contract Bid amount, with no addition or reduction in payment to the Contractor if the actual final quantities are different from the MaineDOT provided estimated quantities, except as follows:

a. If a Lump Sum pay item is eliminated, the requirements of Standard Specifications Section 109.2, Elimination of Items, will take precedence.

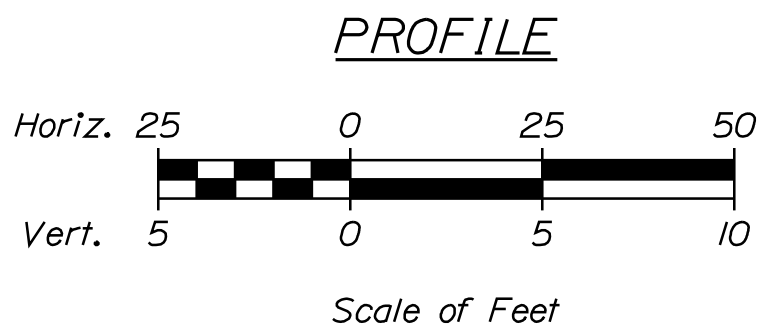
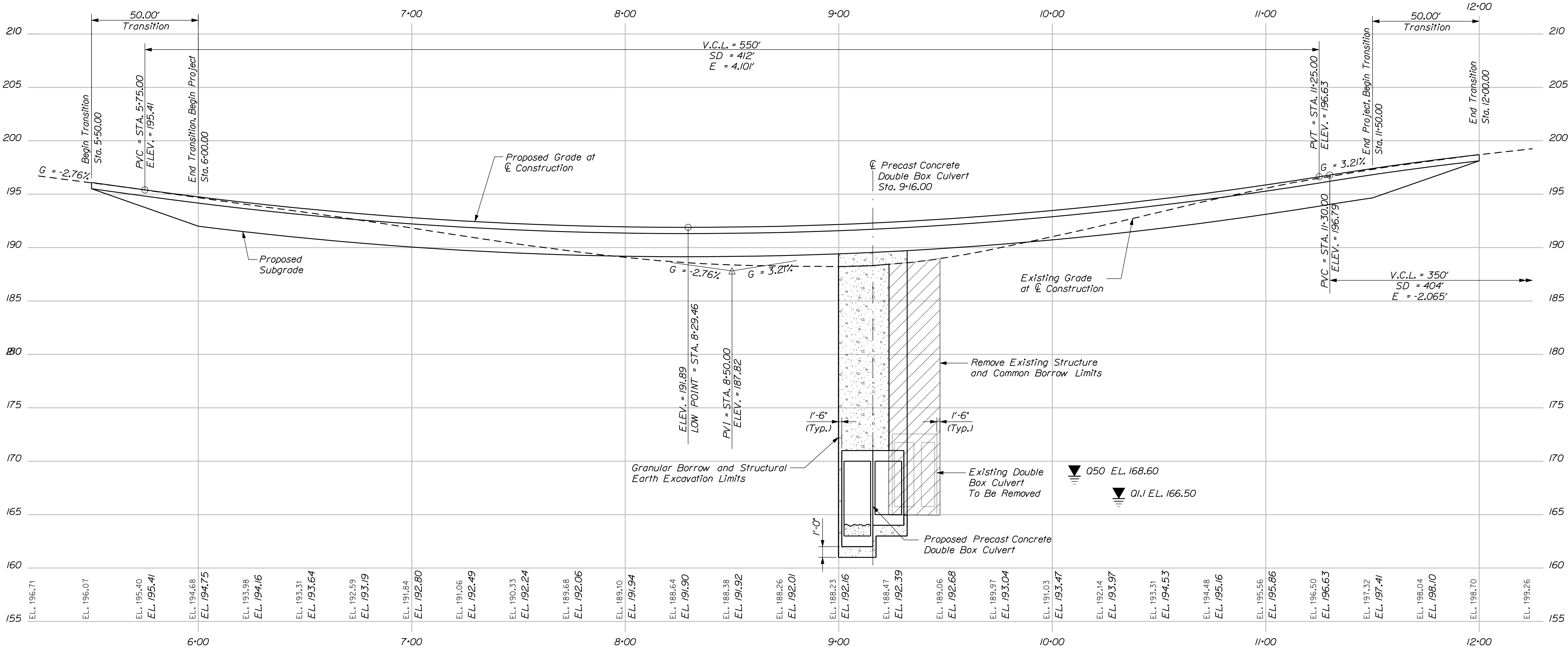
b. If other Contract Documents specifically allow a change in payment for a Lump Sum pay item, those requirements will be followed.

c. If a design change results in changes to estimated quantities for Lump Sum pay items, price adjustments will be made in accordance with Standard Specifications Section 109.7, Equitable Adjustments to Compensation.

17. Two Reflectorized Flexible Guardrail Markers (Item 606.353) shall be installed at each guardrail end

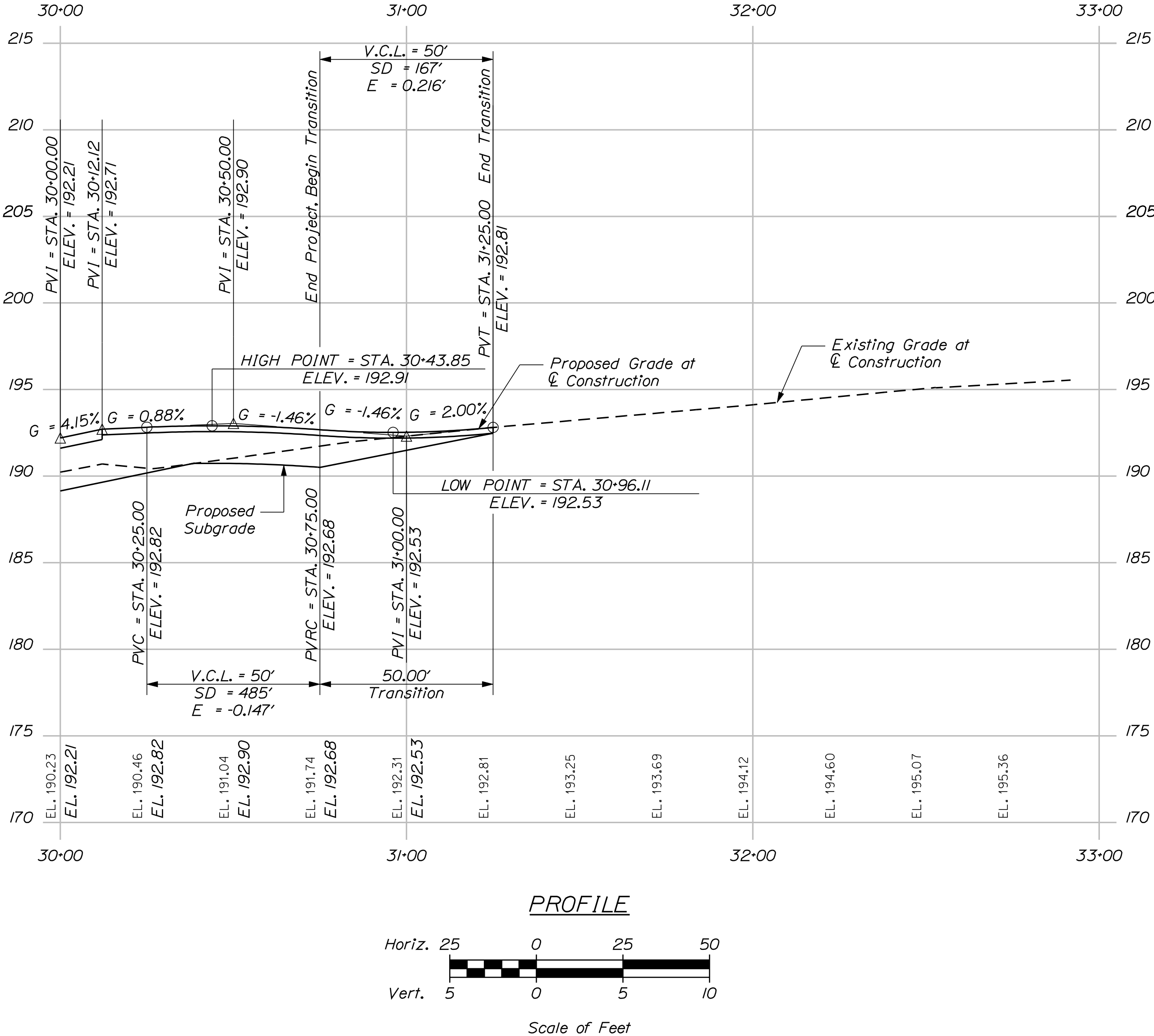
18. Payment for Removal of Gabion Walls shall be incidental to Item 202.19, Remove Existing Bridge. Stones from Gabion Walls may be used as Common Borrow, as directed by the Resident.

SHEET NUMBER 2 OF 21	MILL BROOK BRIDGE MILL BROOK WESTBROOK CUMBERLAND COUNTY				PROJ. MANAGER	N. Benoit	BY	DATE	STATE OF MAINE DEPARTMENT OF TRANSPORTATION NH-1709(204)E BRIDGE NO. 3467 PIN 17092.04 BRIDGE PLANS		
	ESTIMATED QUANTITIES & NOTES				DESIGN-DETAILED	C. Weaver	P. Donovan	SIGNATURE			
					CHECKED-REVIEWED	K. Wood	M. Steele				
					DESIGN2-DETAILED2						
					DESIGN3-DETAILED3						
					REVISIONS 1					P.E. NUMBER	

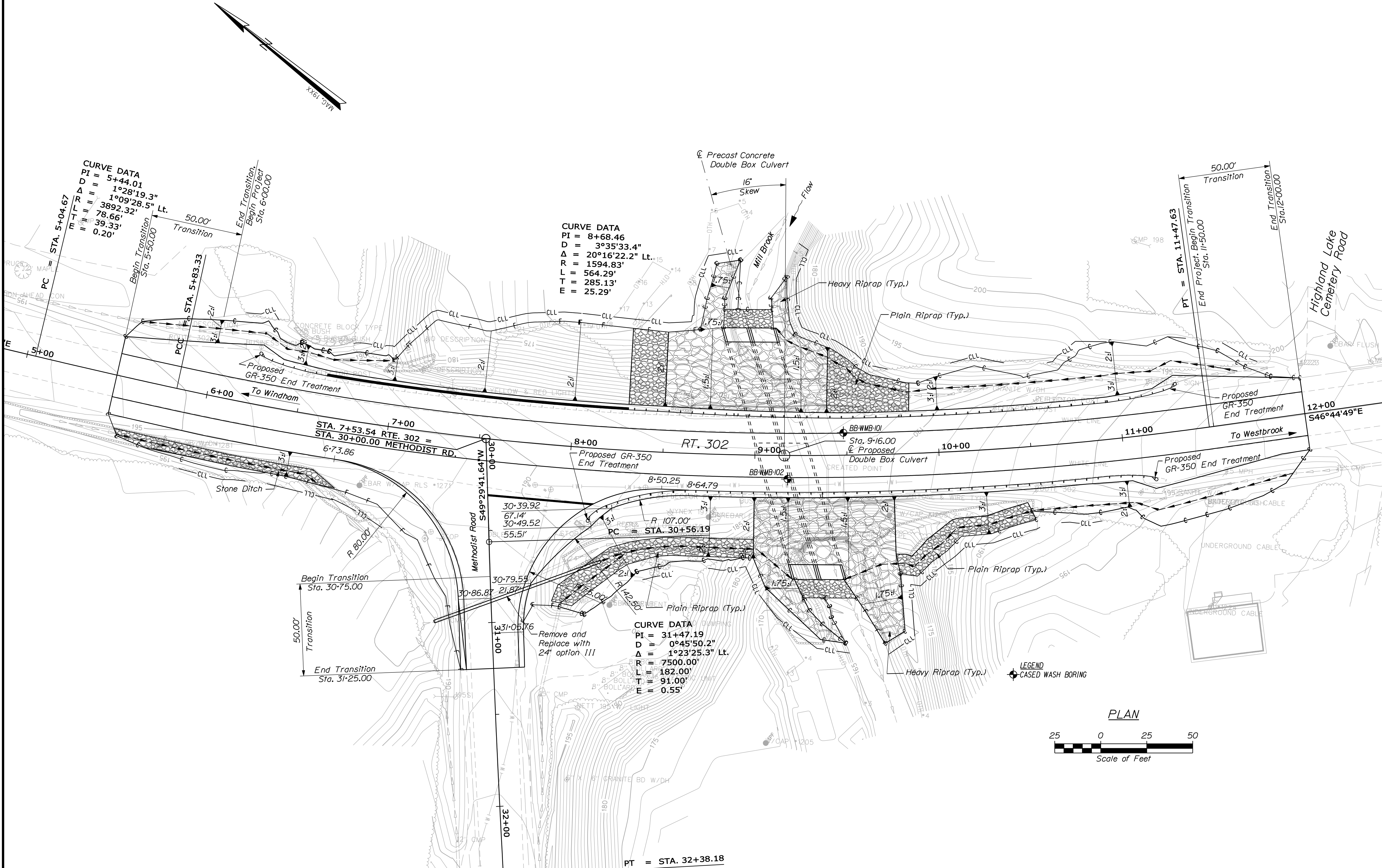


ROUTE 302

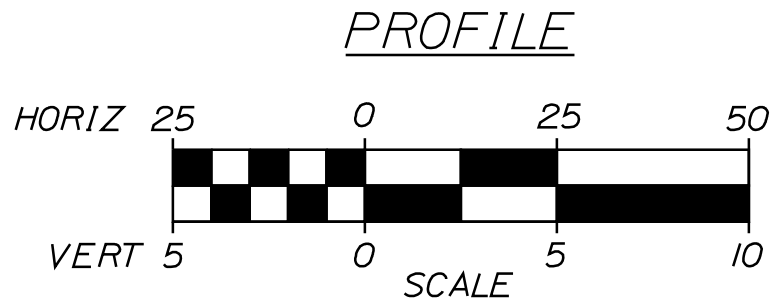
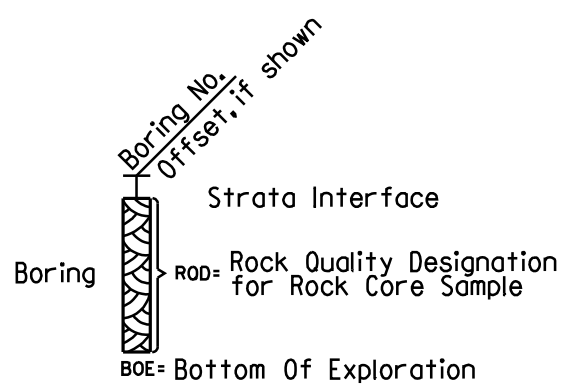
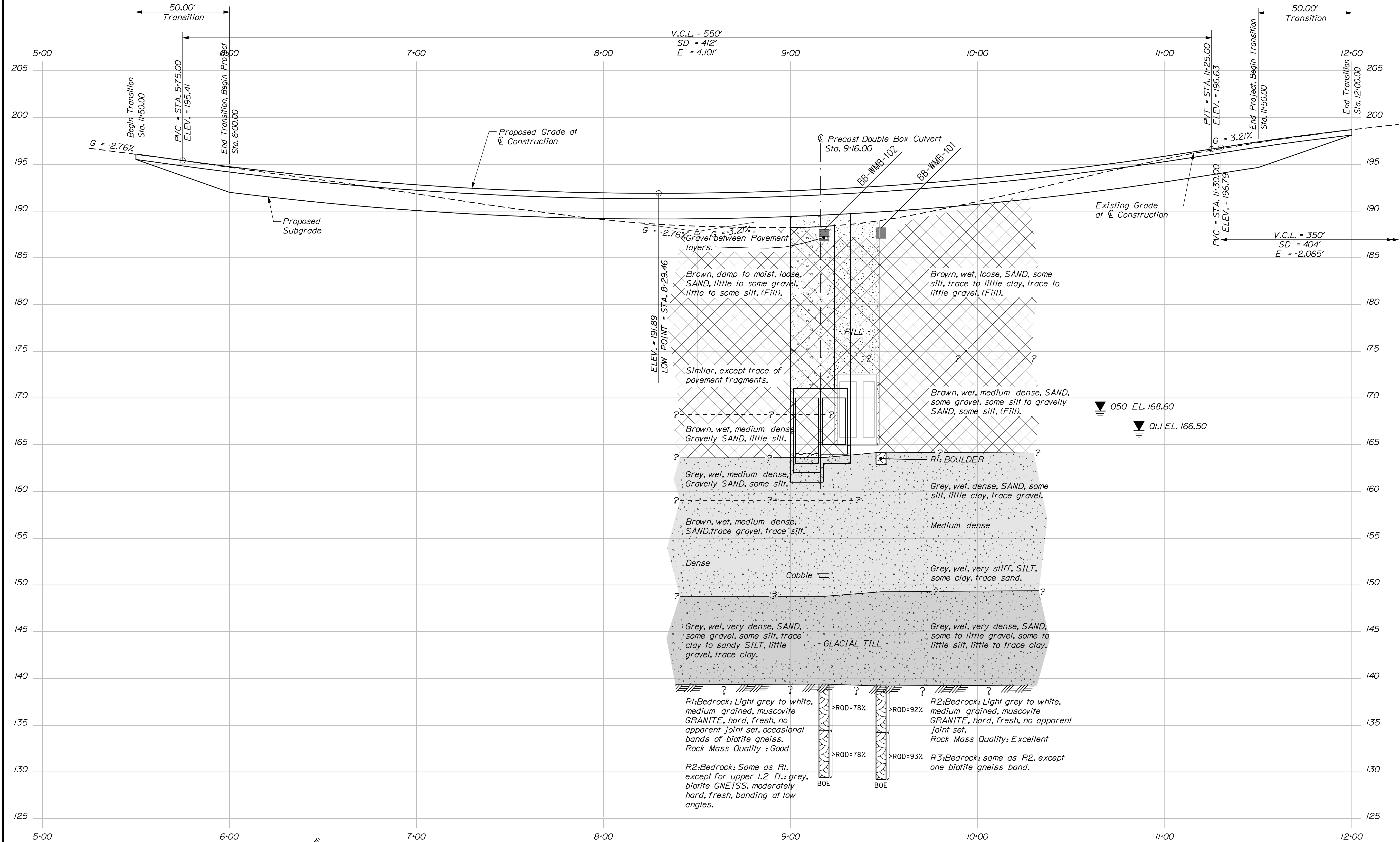
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4		WESTBROOK				DESIGN-DETAILED				C. Weaver				SIGNATURE	
		CUMBERLAND COUNTY				CHECKED-REVIEWED				P. Donovan					
		PROFILE				DESIGN2-DETAILED2				M. Steele					
						DESIGN3-DETAILED3								P.E. NUMBER	
						REVISIONS 1									
						REVISIONS 2									
						REVISIONS 3									
						REVISIONS 4								DATE	
		FIELD CHANGES													
														BRIDGE NO. 3467	
														PIN	
														17092.04	
														BRIDGE PLANS	



STATE OF MAINE DEPARTMENT OF TRANSPORTATION							NH-1709(204)E		BRIDGE NO. 3467 PIN 17092.04		BRIDGE PLANS	
MILL BROOK BRIDGE MILL BROOK WESTBROOK CUMBERLAND COUNTY PROFILE		PROJ. MANAGER		N. Benoit	BY	DATE	SIGNATURE P.E. NUMBER DATE					
		DESIGN-DETAILED		C. Weaver	P. Donovan	3/23/11						
		CHECKED-REVIEWED		K. Wood	M. Steele							
		DESIGN2-DETAILED2										
		DESIGN3-DETAILED3										
		REVISIONS 1										
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		REVISIONS 3										
		REVISIONS 4										
		FIELD CHANGES										
SHEET NUMBER		5										
OF 21												



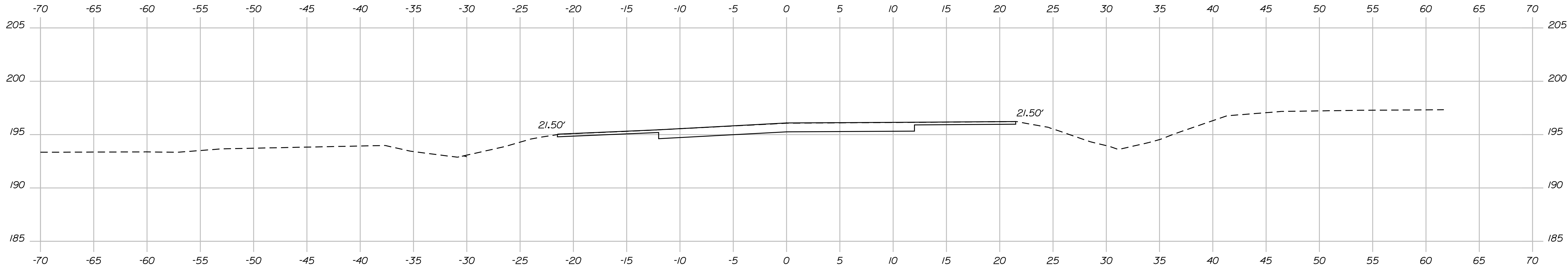
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	P.E. NUMBER			
	DATE			
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	REVISIONS 1			
	REVISIONS 2			
BRIDGE PLANS	DATE			
	BY			
	DATE			
MILL BROOK BRIDGE MILL BROOK WESTBROOK CUMBERLAND COUNTY	DESIGN-REVIEWED			
	DESIGN-DETAILED			
	DESIGN-DETAILED			
BORING LOCATION PLAN	REVISIONS 1			
	REVISIONS 2			
	REVISIONS 3			
SHEET NUMBER 6 OF 21	DATE			
	BY			
	DATE			



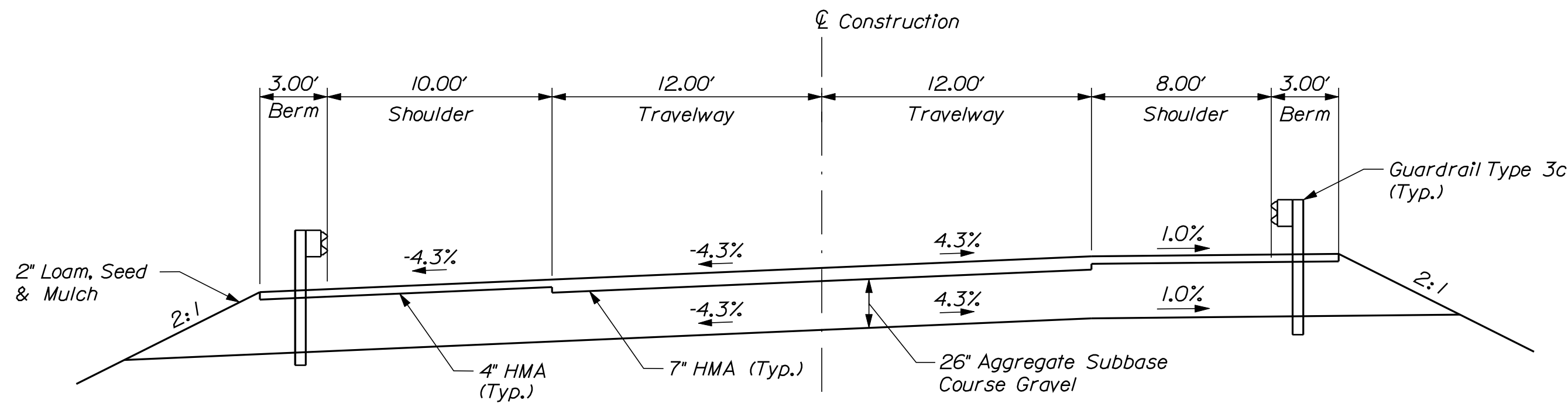
Note: This generalized interpretive soil profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		NH-1709(204)E		PIN 17092.04		BRIDGE PLANS	
MILL BROOK BRIDGE		MILL BROOK		CUMBERLAND COUNTY		WESTBROOK		INTERPRETIVE SUBSURFACE PROFILE	
SHEET NUMBER		7		OF 21					
PROJ. MANAGER	CHECKED-REVIEWED	DESIGNED-DETAILED	REVISIONS 1	REVISIONS 2	REVISIONS 3	REVISIONS 4	FIELD CHANGES	BY	DATE
N. BENOIT	K. MAGUIRE	T. WHITE							
SIGNATURE		P.E. NUMBER		DATE					

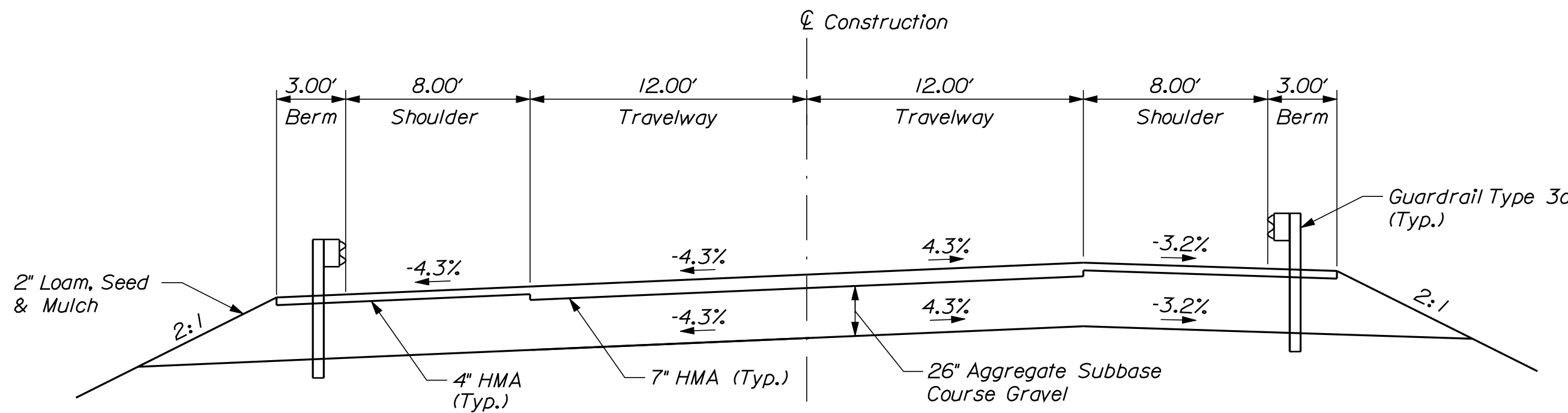
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5+50.00
Begin Transition - Match Existing Sta. 5+50.00



TYPICAL SECTION
Sta. 5+50 to Sta. 9+50



TYPICAL SECTION
Sta. 9+50 to Sta. 12+00



STATE OF MAINE	
DEPARTMENT OF TRANSPORTATION	
NH-1709(204)E	
BRIDGE NO. 3467	PIN 17092.04
BRIDGE PLANS	

PROJ. MANAGER	BY	DATE	SIGNATURE
N. Benoit	P. Doran	1/23/11	
C. Wenner	M. Steele		
CHECKED-REVIEWED			
DESIGNED-DETAILED			
DESIGNED-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

MILL BROOK BRIDGE	CUMBERLAND COUNTY	CROSS SECTIONS
MILL BROOK		
WESTBROOK		

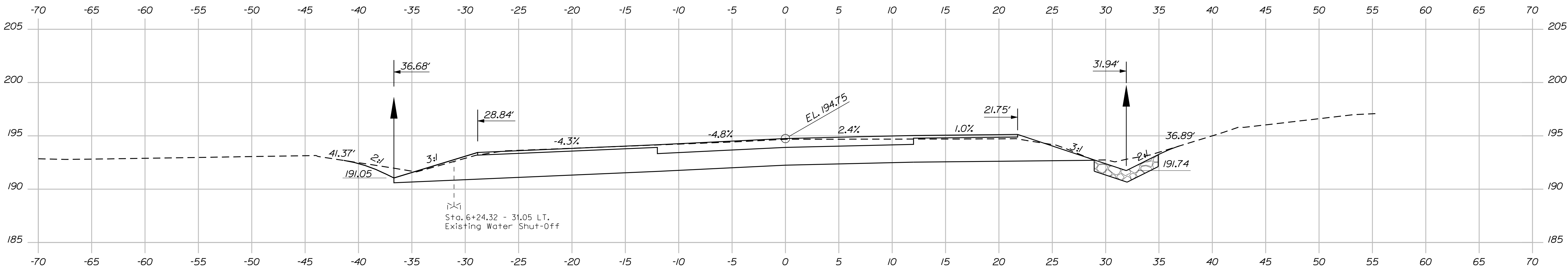
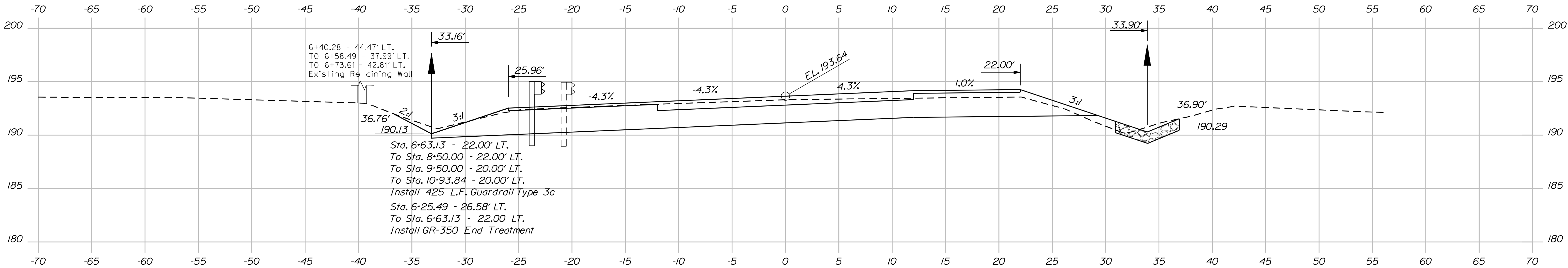
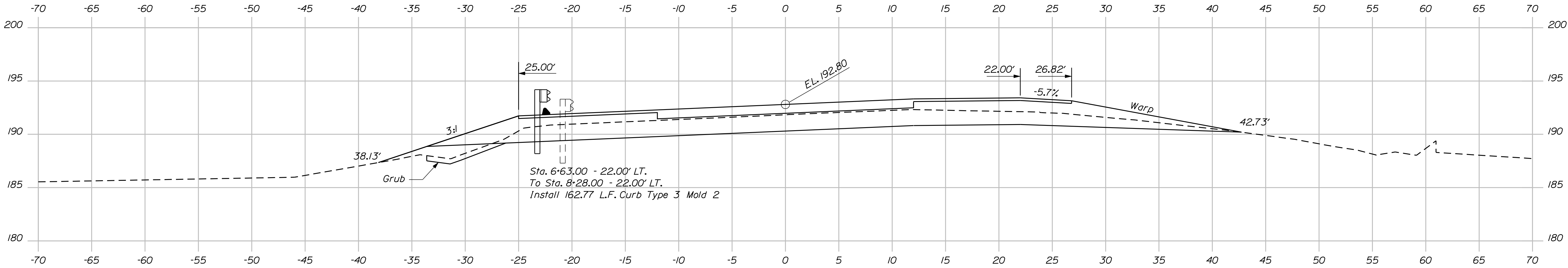
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9
OF 21

Date:3/22/2011

Username: kris.constanzer

Division: BRIDGE

Filename: ... \MSTA\010_XSection_Rte-302.dgn



6+00.00
End Transition - Begin Project Sta. 6+00.00



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
NH-1709(204)E
PIN 17092.04
BRIDGE NO. 3467
BRIDGE PLANS

PROJ. MANAGER	BY	DATE
N. Benoit	P. Doran	1/28/11
C. Wiener	M. Steele	
CHECKED-DETAILED		SIGNATURE
DESIGNS-DETAILED		P.E. NUMBER
REVISIONS 1		DATE
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

MILL BROOK BRIDGE
MILL BROOK
WESTBROOK CUMBERLAND COUNTY
CROSS SECTIONS

SHEET NUMBER
10
OF 21

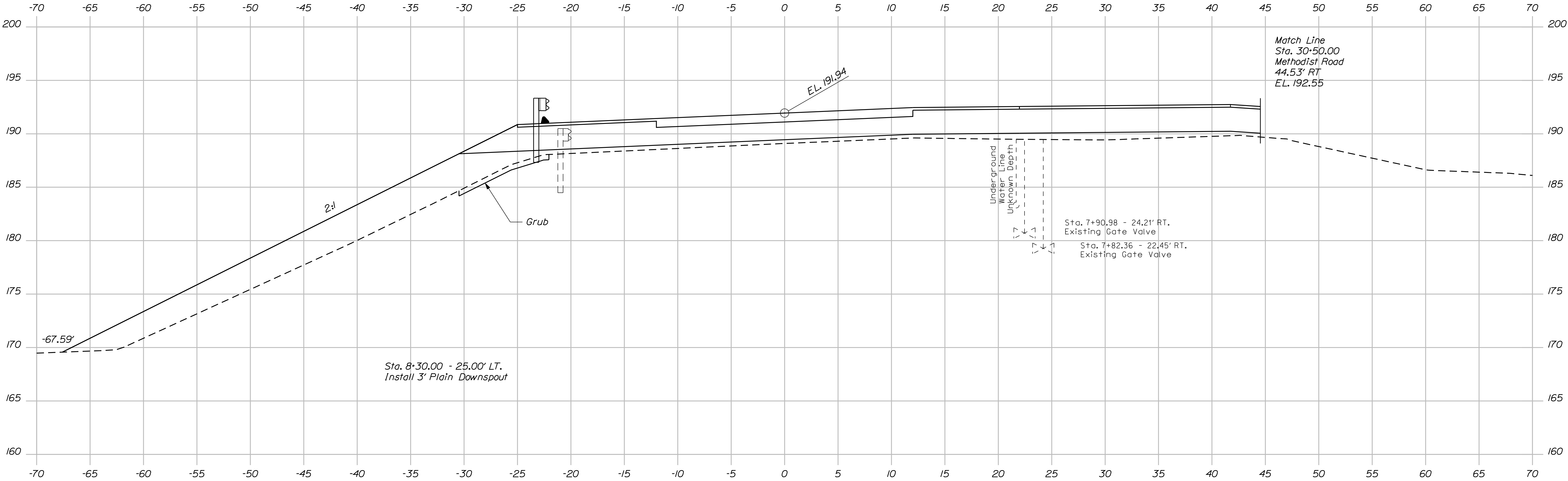
Sta. 6+00.00 to Sta. 7+00.00

Username: kris.constanzer

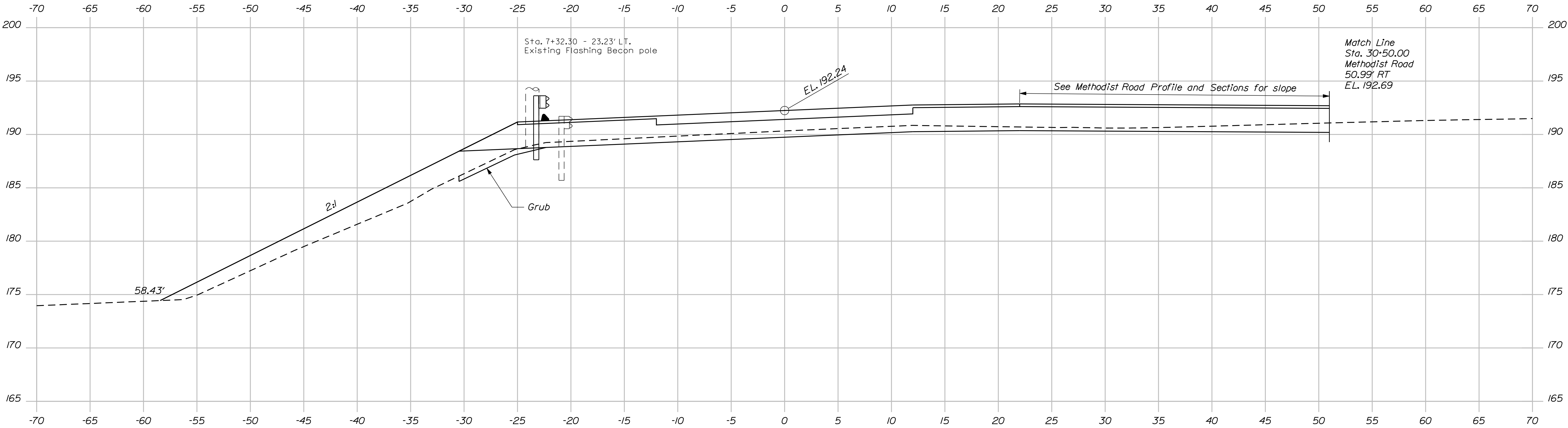
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8+00.00



7+50.00



STATE OF MAINE DEPARTMENT OF TRANSPORTATION	NH-1709(204)E	
	BRIDGE NO. 3487	PIN 17092.04
	BRIDGE PLANS	

PROJ. MANAGER	BY	DATE
N. Benoit	P. Doran	1/23/11
C. Wiener	M. Steele	
CHECKED-REVIEWED	SIGNATURE	
DESIGN-DETAILED	P.E. NUMBER	
DESIGN-DETAILED	DATE	
REVISIONS 1		
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REVISIONS 4		
FIELD CHANGES		

MILL BROOK BRIDGE	MILL BROOK CUMBERLAND COUNTY	CROSS SECTIONS
WESTBROOK		

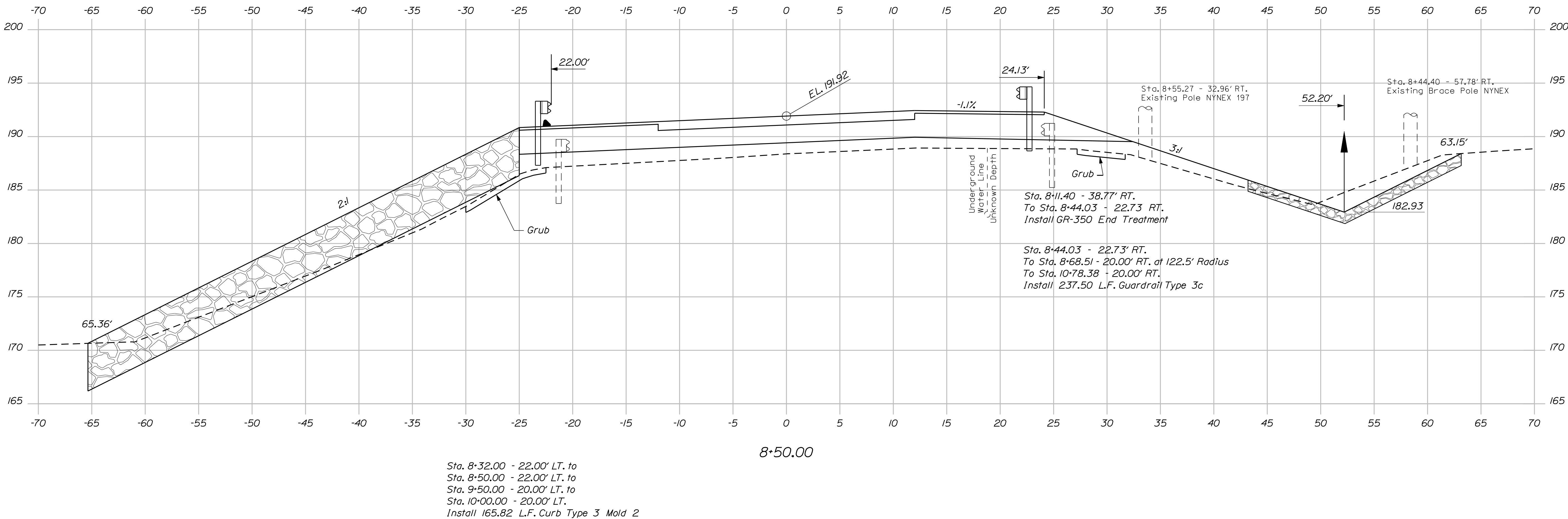
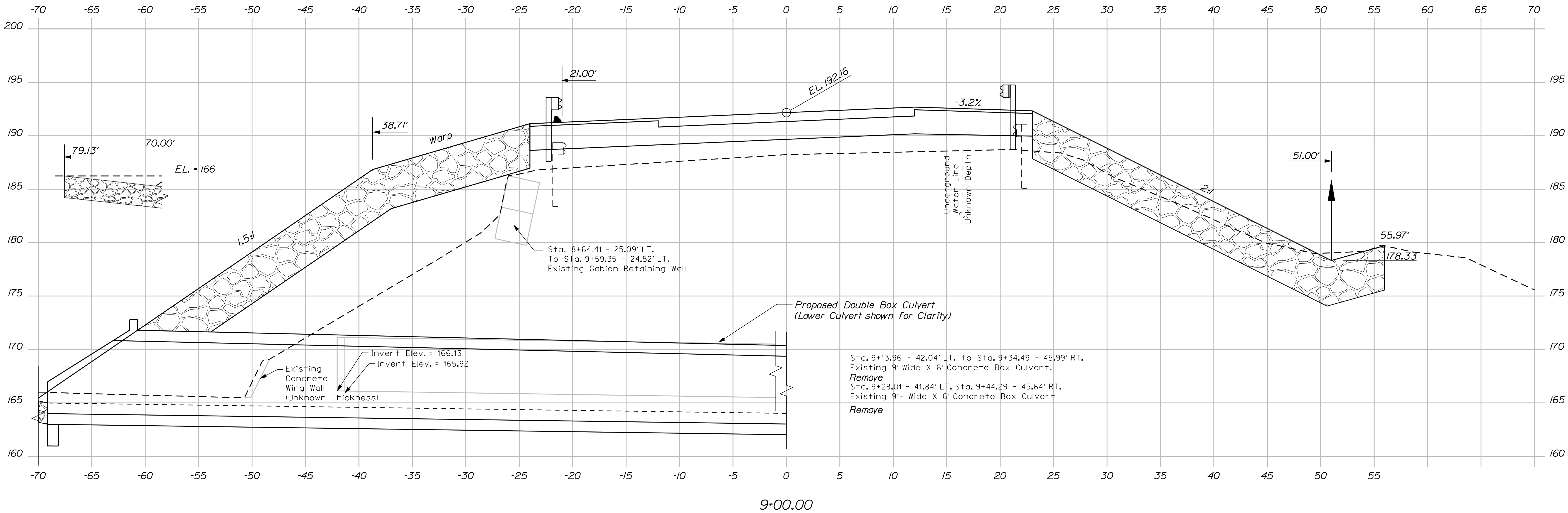
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Date: 3/28/2011

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Division: BRIDGE

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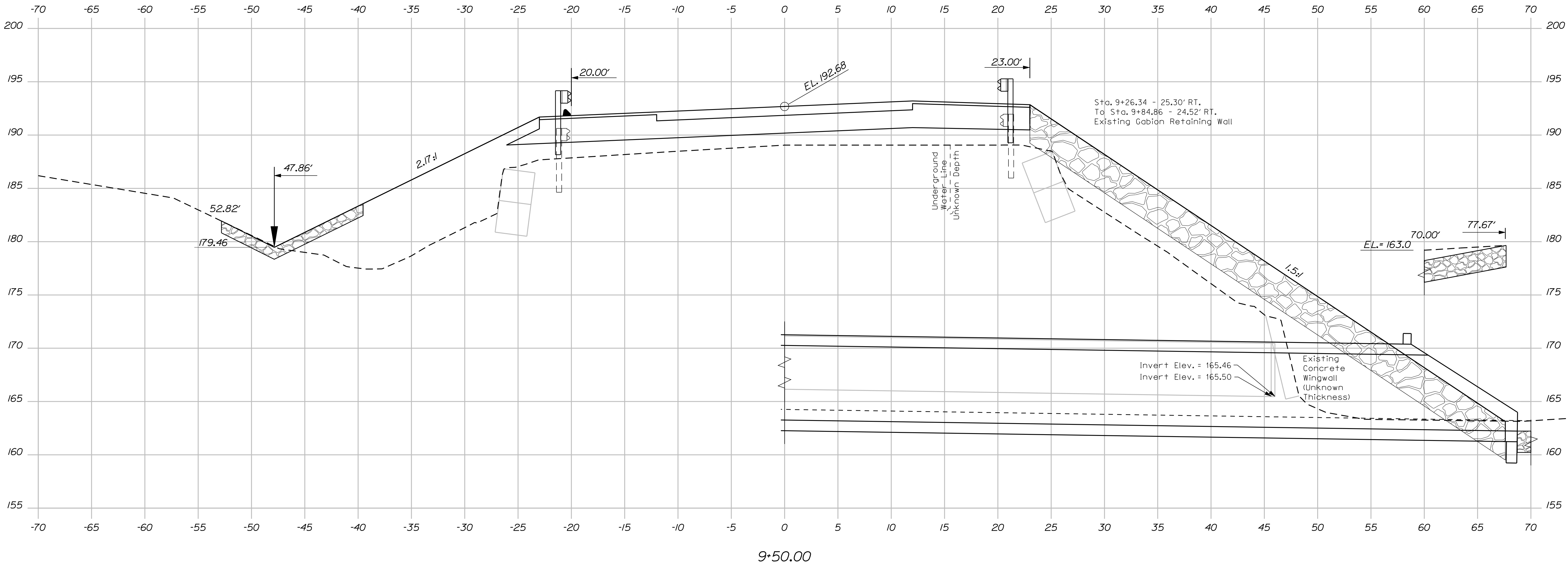
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DEPARTMENT OF TRANSPORTATION	
NH-1709(204)E	
BRIDGE NO. 3467	PIN 17092.04
BRIDGE PLANS	

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CHECKED-DETAILED		P. Doran	3/23/11
DESIGN-REVIEWED		M. Steele	
DESIGNS-DETAILED			
DESIGNS-REVIEWED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

MILL BROOK BRIDGE	
MILL BROOK	
WESTBROOK CUMBERLAND COUNTY	
CROSS SECTIONS	

SHEET NUMBER	
12	
OF 21	

Sta. 8+50.00 to Sta. 9+00.00



STATE OF MAINE	
DEPARTMENT OF TRANSPORTATION	
NH-1709(204)E	
BRIDGE NO. 3467	PIN 17092.04
BRIDGE PLANS	

PROJ. MANAGER	BY	DATE
N. Benoit	P. Doran	1/28/11
C. Wenner	M. Steele	
CHECKED-REVIEWED	SIGNATURE	
DESIGNED-DETAILED	P.E. NUMBER	
REVISIONS 1	DATE	
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

MILL BROOK BRIDGE	CROSS SECTIONS
MILL BROOK CUMBERLAND COUNTY	

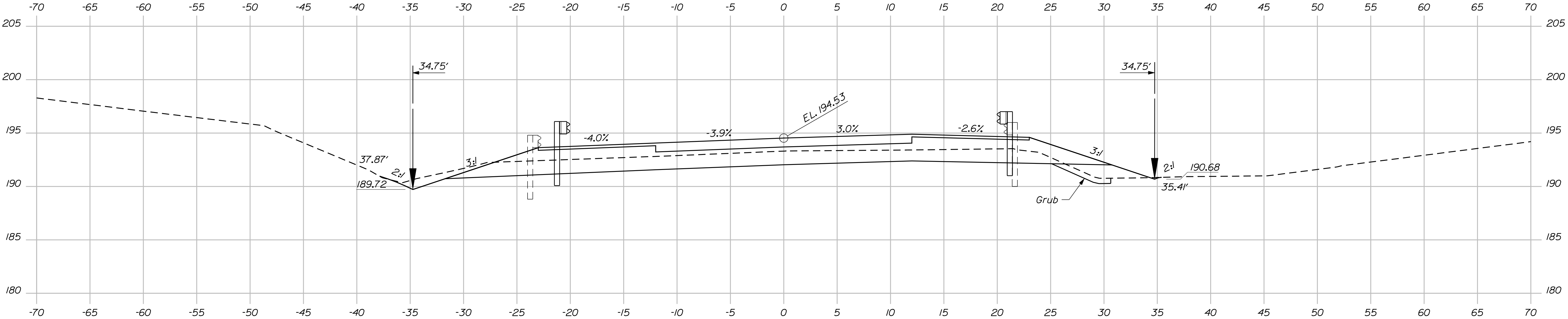
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Date: 3/22/2011

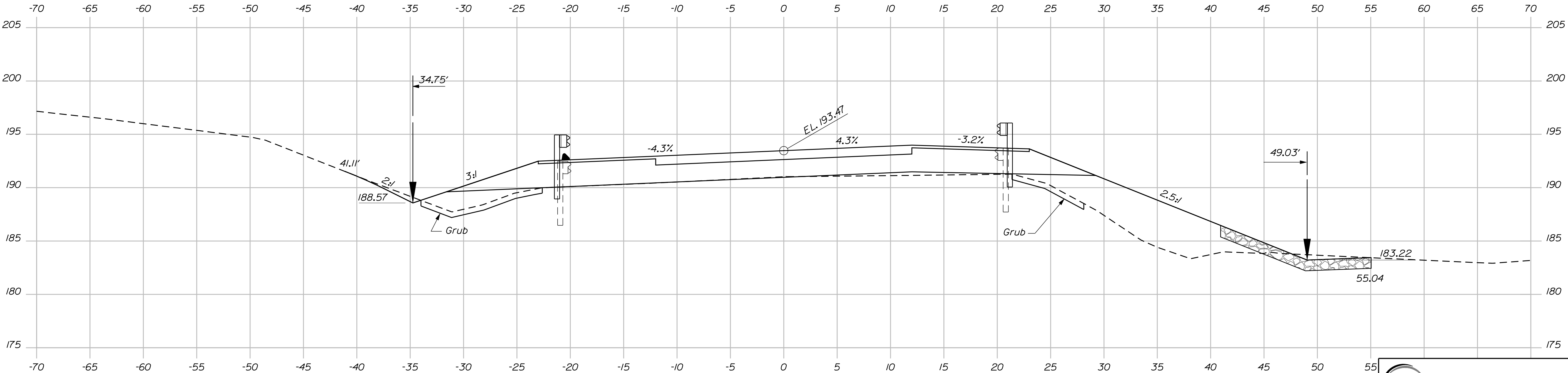
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Division: BRIDGE

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10+50.00



10+00.00



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
NH-1709(204)E
BRIDGE NO. 3487
PIN 17092.04
BRIDGE PLANS

PROJ. MANAGER	BY	DATE
N. Benoit	P. Doran	1/28/11
C. Wenner	M. Steele	
CHECKED-REVIEWED		SIGNATURE
DESIGNS-DETAILED		P.E. NUMBER
REVISIONS 1		DATE
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

MILL BROOK BRIDGE
MILL BROOK
WESTBROOK CUMBERLAND COUNTY
CROSS SECTIONS

SHEET NUMBER
14
OF 21

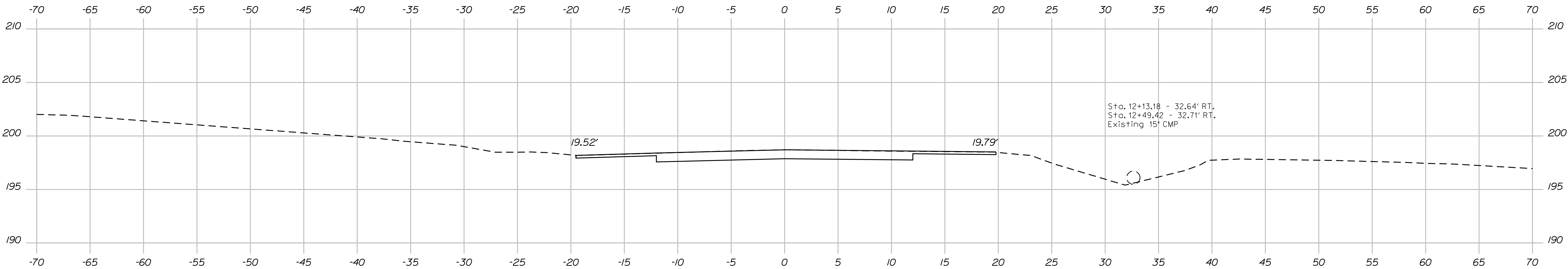
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Date:3/23/2011

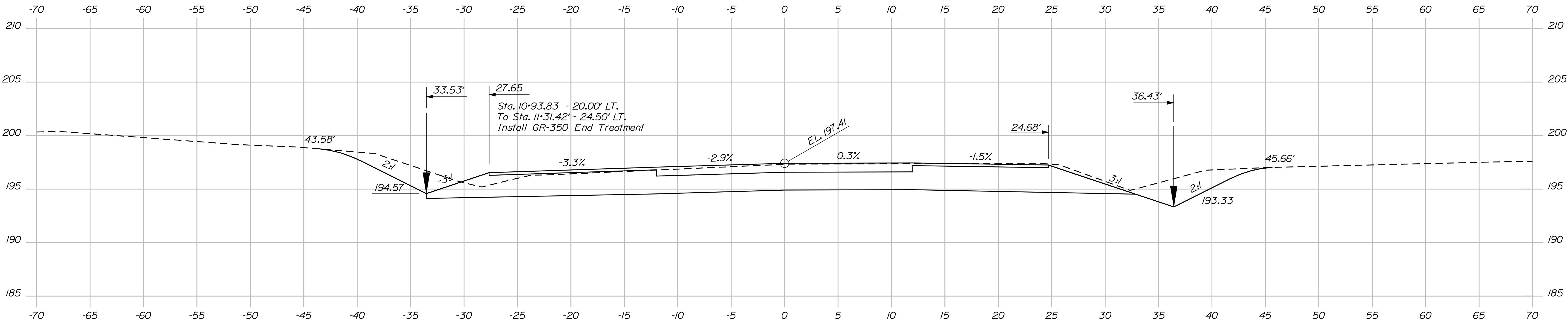
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Division: BRIDGE

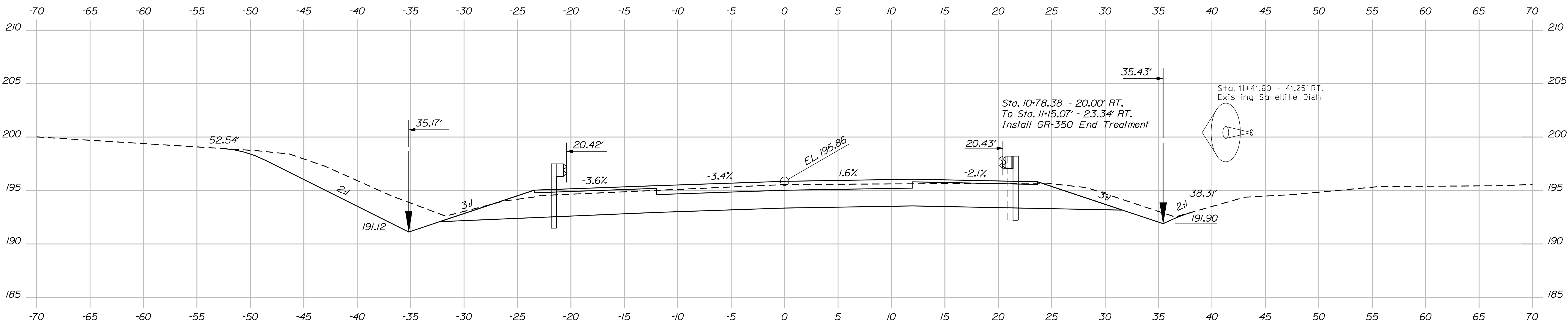
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12+00.00
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11+50.00
End Project - Begin Transition Sta. 11+50.00



11+00.00



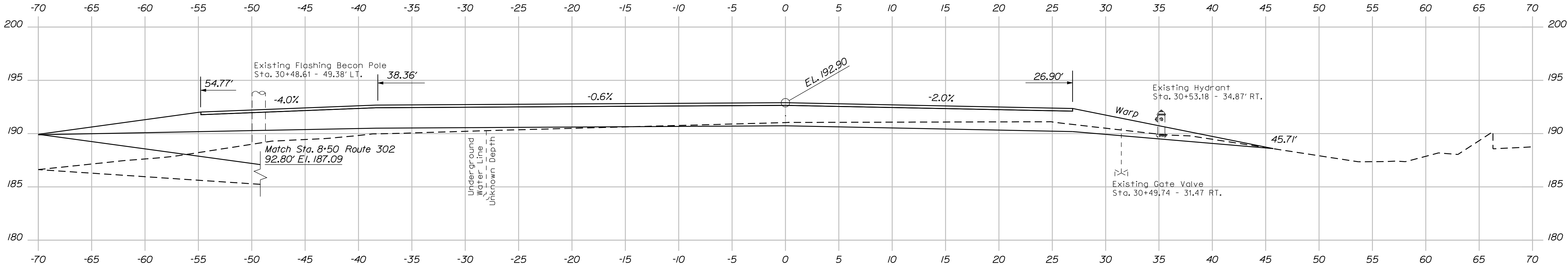
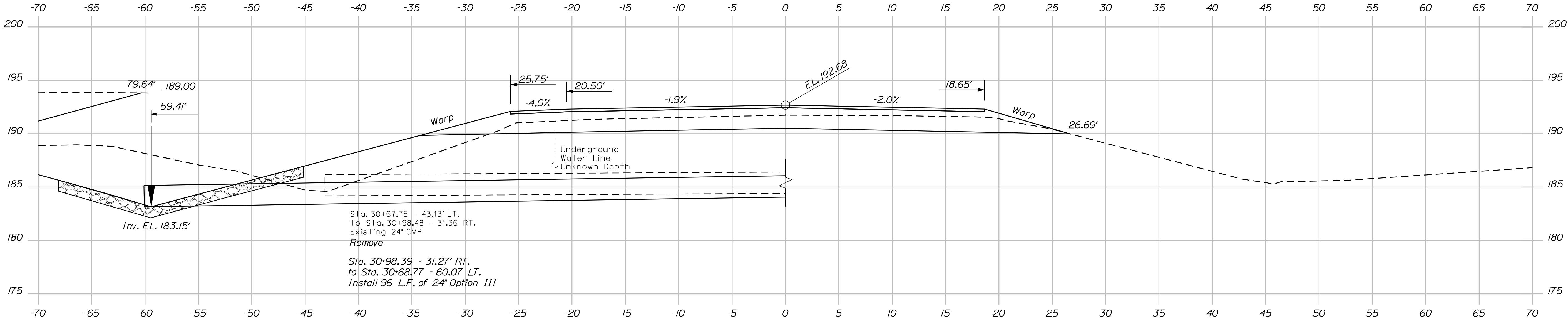
STATE OF MAINE	
DEPARTMENT OF TRANSPORTATION	
NH-1709(204)E	
BRIDGE NO. 3467	PIN 17092.04
BRIDGE PLANS	

PROJ. MANAGER		BY		DATE	
DESIGNED-DETAILED		P. Doran		1/28/11	
CHECKED-REVIEWED		C. Wenner		M. Steele	
DESIGNED-DETAILED					
REVISIONS 1					
REVISIONS 2					
REVISIONS 3					
REVISIONS 4					
FIELD CHANGES					

MILL BROOK BRIDGE	
MILL BROOK	
CUMBERLAND COUNTY	
WESTBROOK	
CROSS SECTIONS	

SHEET NUMBER	
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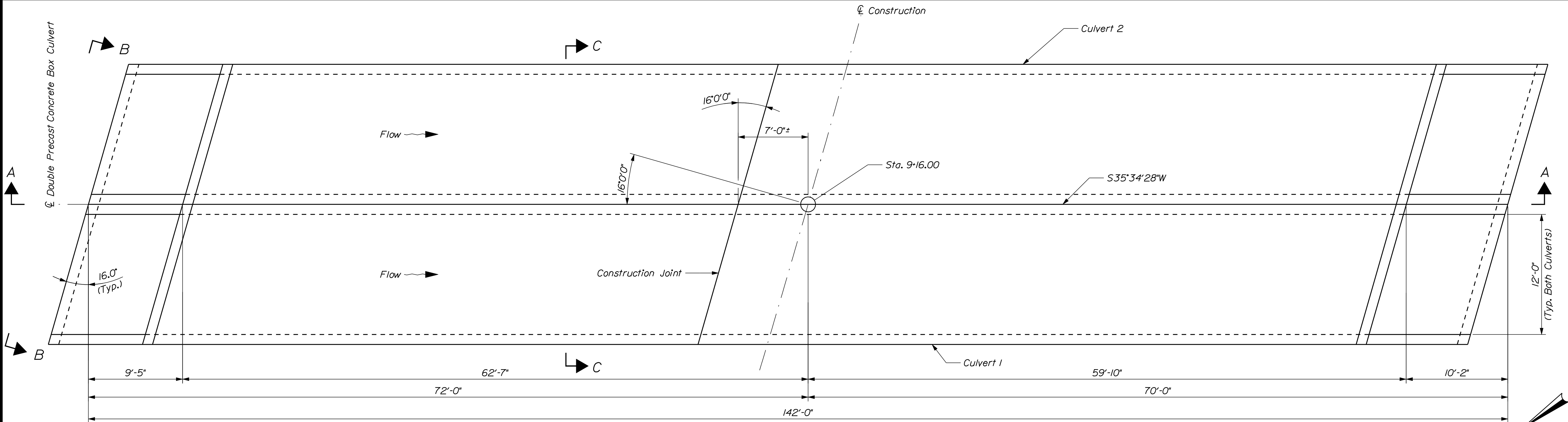
SHEET NUMBER				STATE OF MAINE					
16				DEPARTMENT OF TRANSPORTATION					
				NH-1709(204)E					
CROSS SECTIONS				BRIDGE NO. 3467		PIN 17092.04		BRIDGE PLANS	
				DATE					
				P.E. NUMBER					
				SIGNATURE					
MILL BROOK BRIDGE				PROJ. MANAGER	N. Benoit	BY	DATE		
MILL BROOK				DESIGN-DETAILED	C. Weaver	P. Donovan			
WESTBROOK				CHECKED-REVIEWED	K. Wood	M. Steele	1/28/11		
CUMBERLAND COUNTY				DESIGN2-DETAILED2					
				DESIGN3-DETAILED3					
				REVISIONS 1					
				REVISIONS 2					
				REVISIONS 3					
				REVISIONS 4					
				FIELD CHANGES					

Date: 2/25/2011

Username: craig.weaver

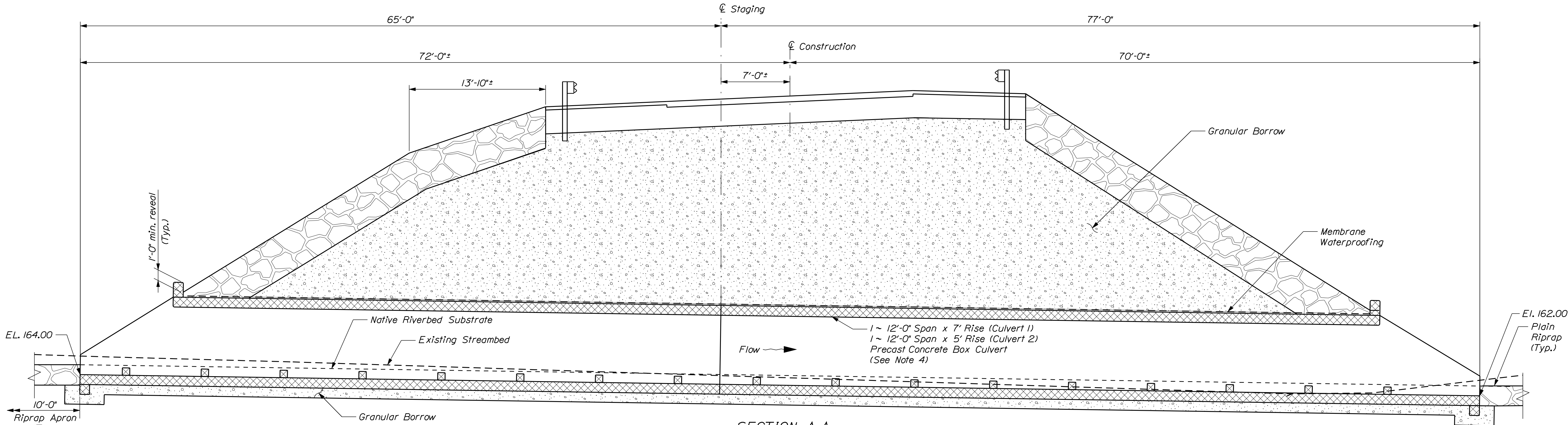
Division: BRIDGE

Filename: ... \bridge\msta\019_Precast_1.dgn



Note: See Sheet 20 for View B-B and Section C-C

PLAN



SECTION A-A

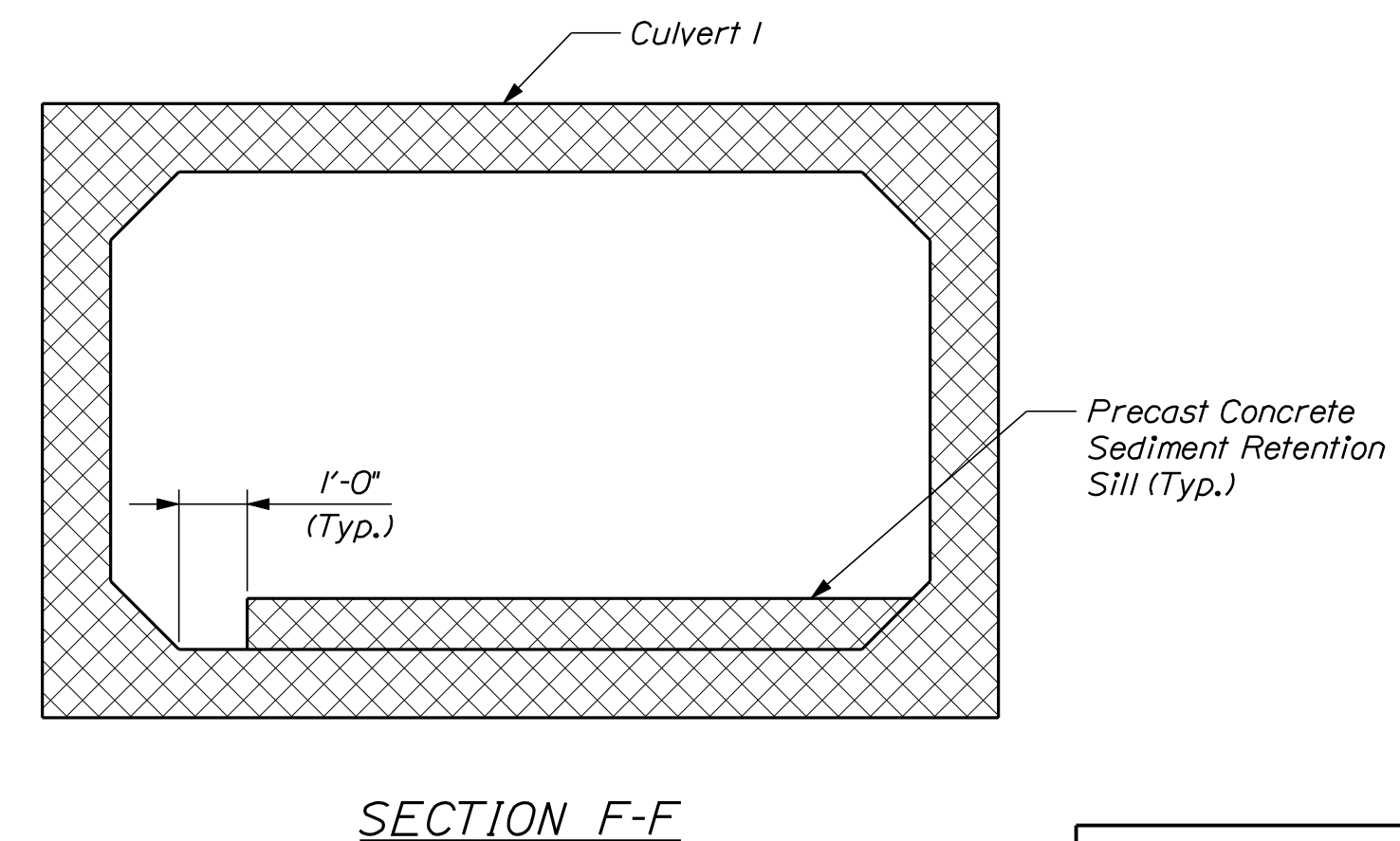
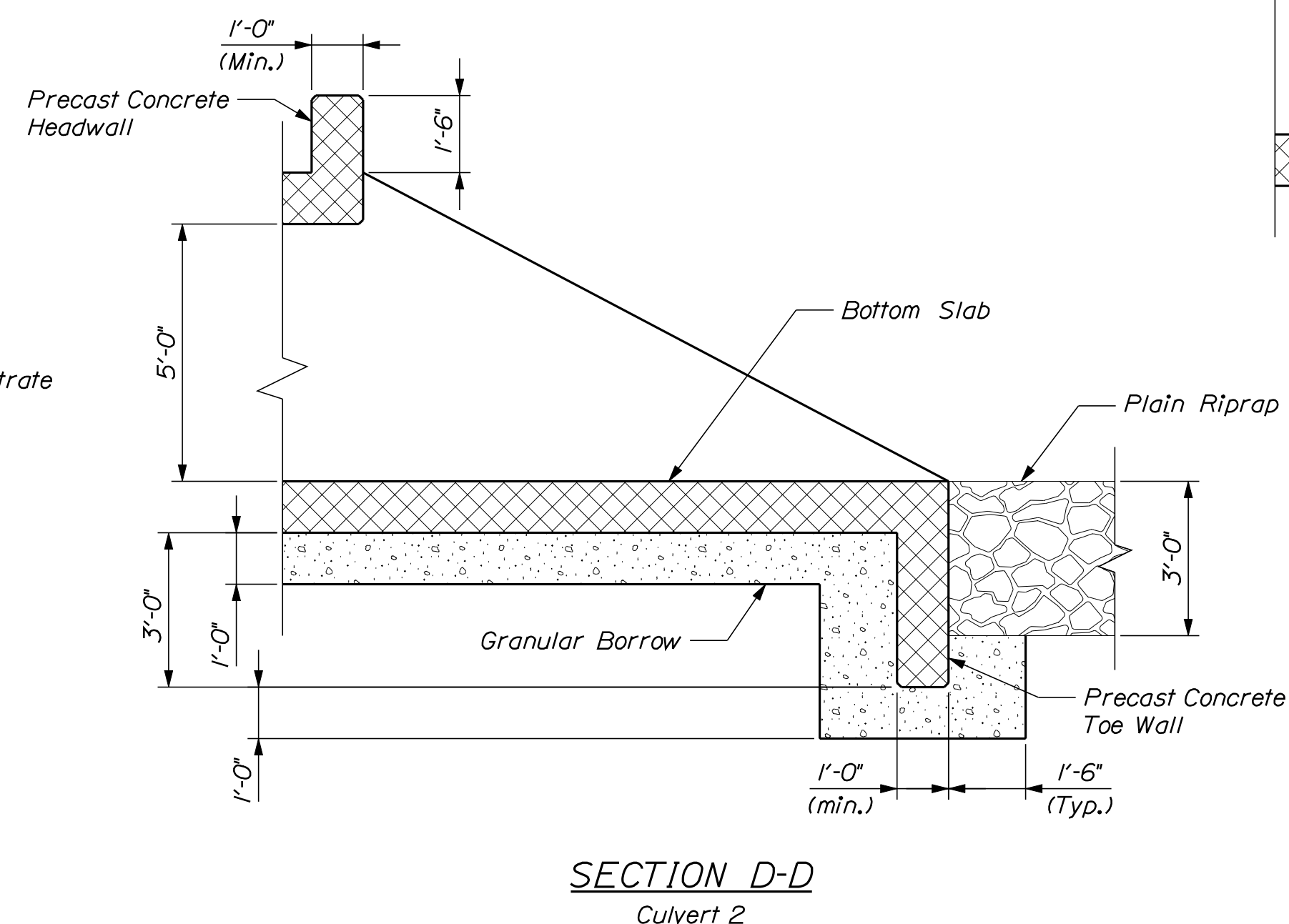
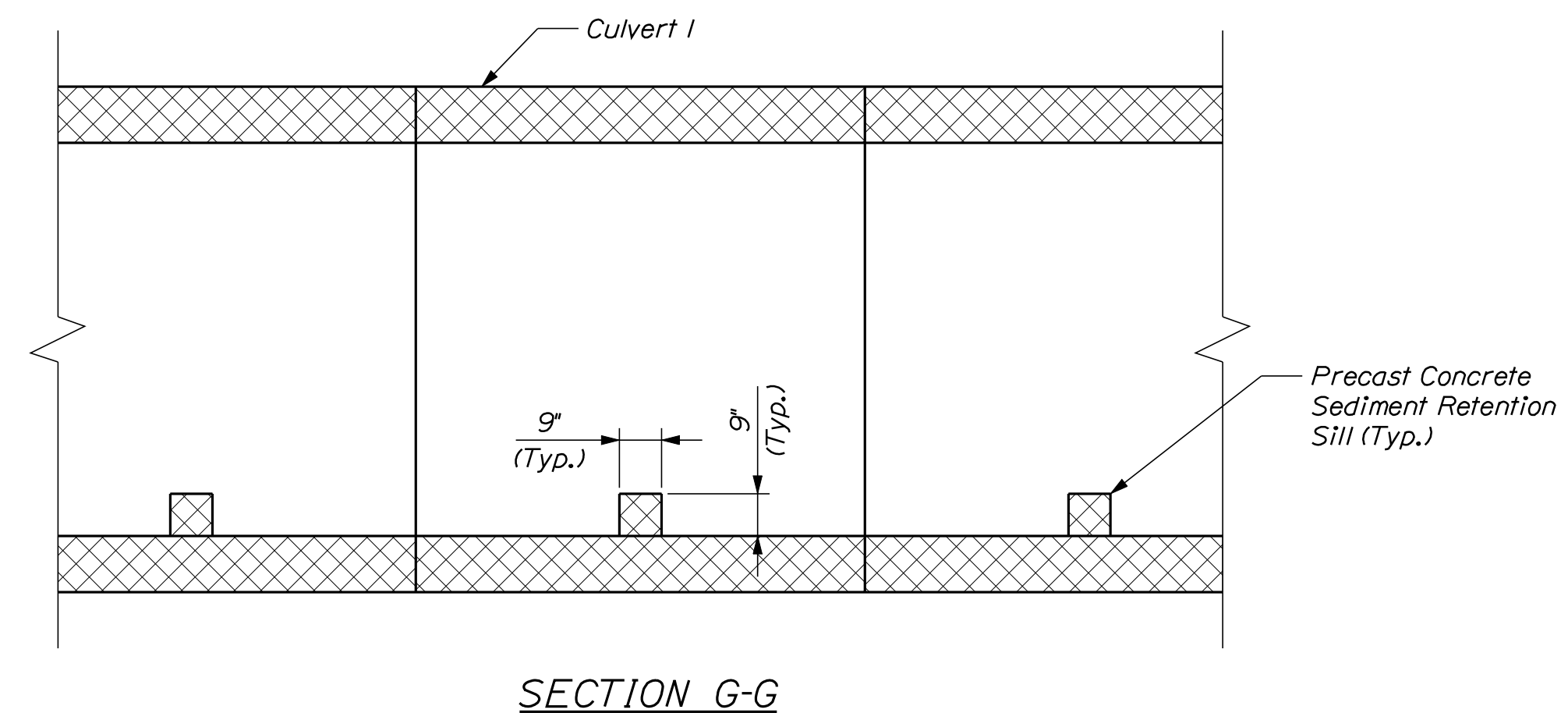
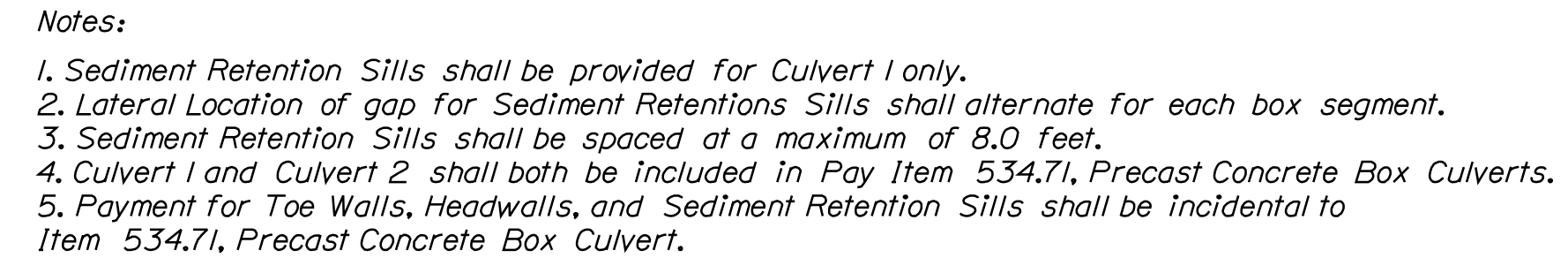
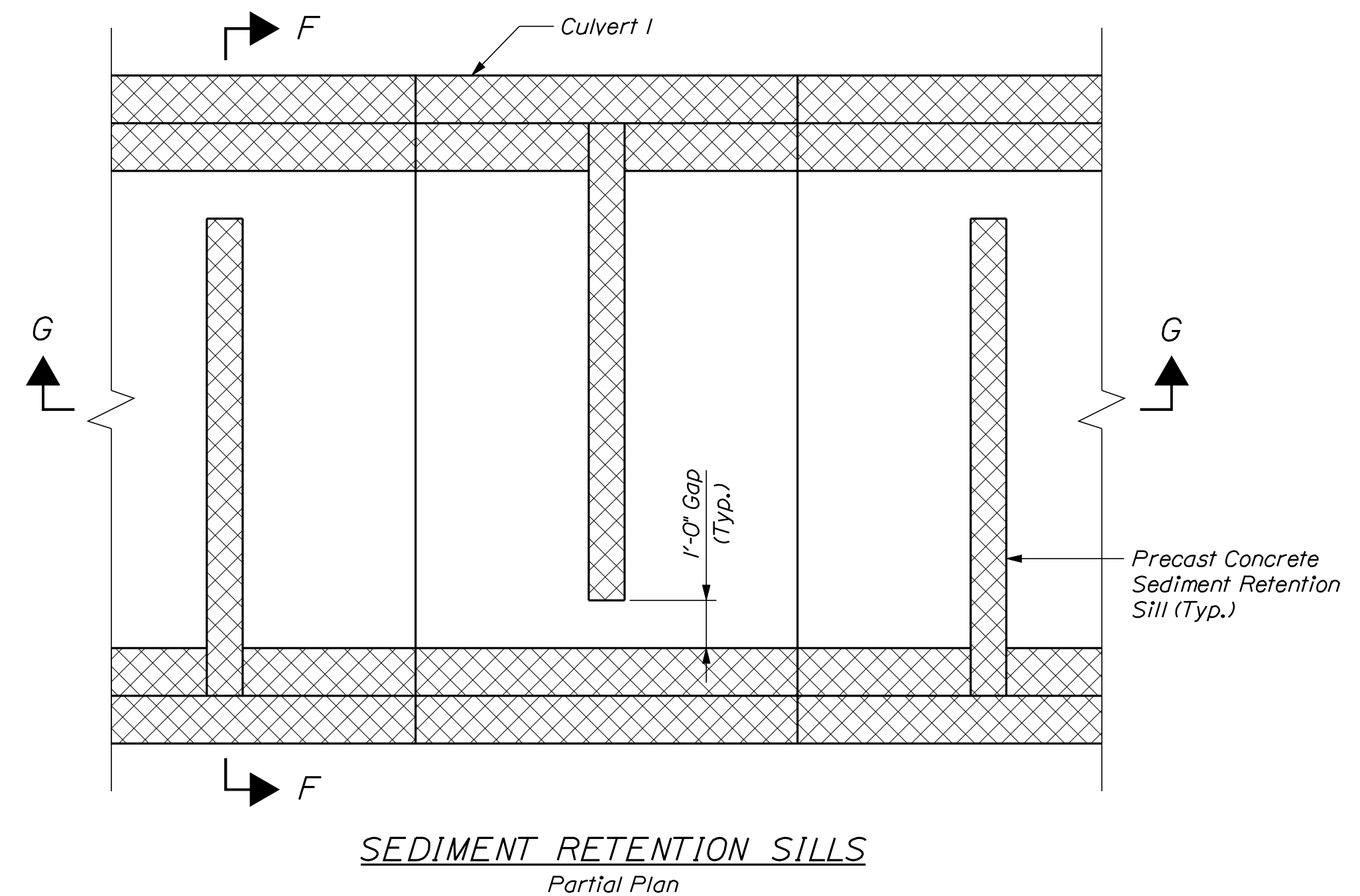
Culvert 1 Shown, Culvert 2 not shown for clarity

PRECAST CONCRETE BOX NOTES

- The precast units shall be designed to carry construction loadings with a minimum fill cover of 18 inches over the top of the units.
- The construction, handling, and assembly of the precast units shall be in accordance with Special Provisions Section 534, Precast Structural Concrete, and with the manufacturer's specifications as applicable.
- Install standard membrane waterproofing over the top and to 12 inches down the exterior sides of the precast units.
- The 12'x7' and 12'x5' box culverts may be substituted with 12'x8' and 12'x6' box culverts, respectively, at no additional cost to the Department.

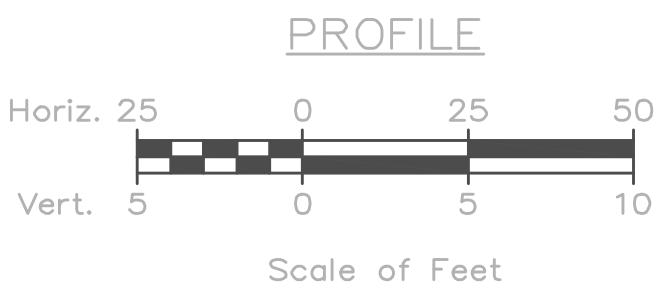
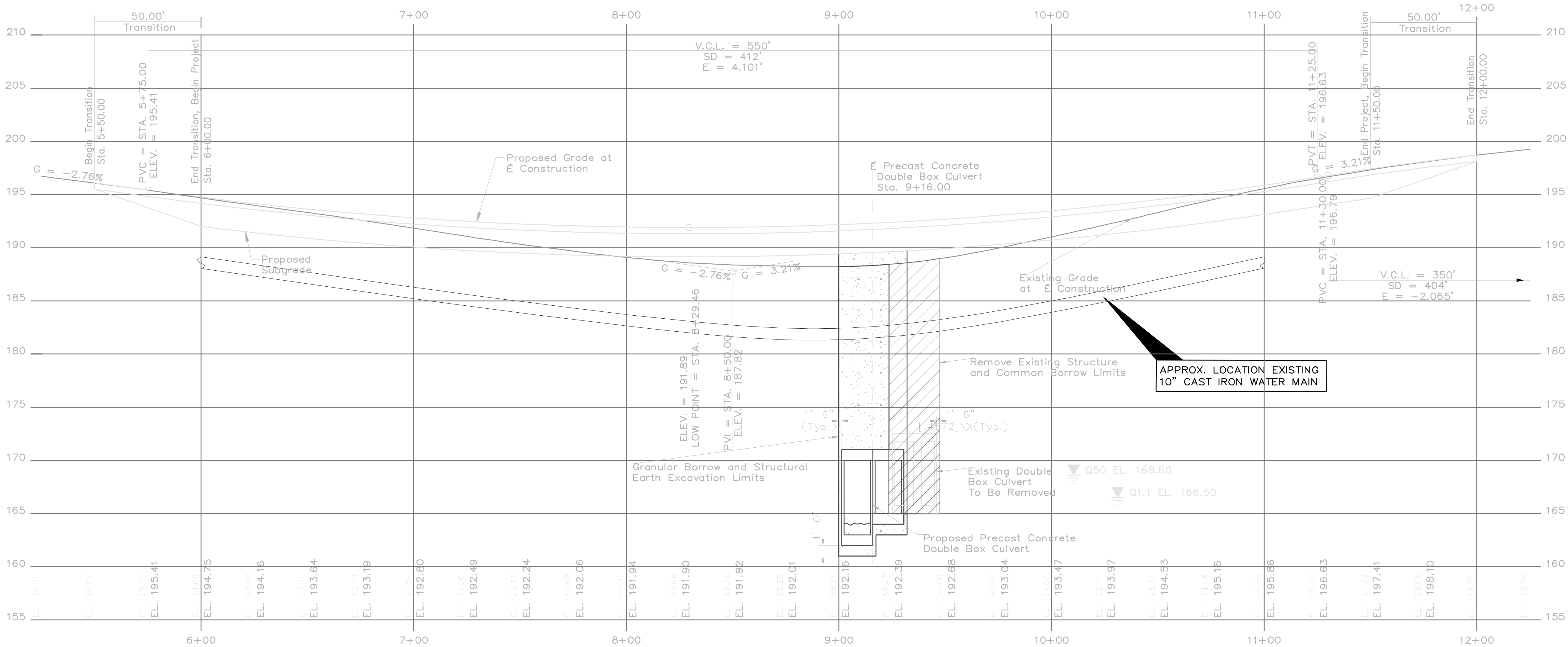


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Notes:

1. Native Riverbed Substrate shall be dredge material as specified in Special Provision 203, Excavation and Embankment (Dredge Materials).
2. Box Culvert shall be filled with Native Riverbed Substrate according to Special Provision 203, Special Fill. Payment shall correspond to Item 203.33, Special Fill.

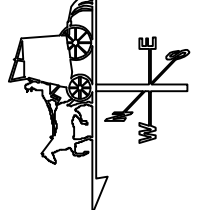


ROUTE 302

WATER MAIN REPLACEMENT
ASSOCIATED WITH
**MILL BROOK BRIDGE
REPLACEMENT**
BRIDGETON ROAD
WESTBROOK MAINE

DATE
12-22-2010

SCALE
AS NOTED

**Portland Water District**
ENGINEERING DEPARTMENT
225 DOUGLASS STREET P.O. 3553 PORTLAND, MAINE 04104-3553

PROJECT NO. | FIELD BOOK | DESIGN | CHKD | DRAWN | DFW

17/2011
1/24/2011
3/8/2011

DATE:
BY:
STATUS:

1
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1/7/2011
1/24/2011
3/8/2011

DATE:
BY:
STATUS:

1
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1/7/2011
1/24/2011
3/8/2011

DATE:
BY:
STATUS: